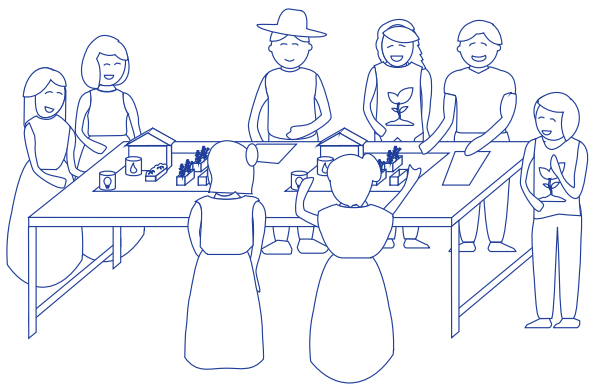
DESIGN WHEN SOCIAL ENTERPRISES ARISE

Design for Sustainable Development In Guatemala
through Social Enterprises



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Master of Arts thesis abstract

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Abstract

Developing countries require flexible models that approach social needs and poverty effectively to achieve wellbeing and sustainability. The emerging models observed lately in social enterprises present emerging forms of social innovation- reformulating the way we approach communities and develop solutions for social needs. In this emerging scene, design could find new opportunities to contribute to sustainable development. For instance, social enterprises face big barriers in tackling social and ecological problems, which makes it relevant to understand *how social enterprises tackle communities' needs, and in which ways can designers contribute to their work for sustainable development*.

This thesis examines how social enterprises are contributing to sustainable development, specifically in Guatemala. In depth, it examines the case of Byoearth, a local social enterprise dealing with the problematic of farming and soil restoration, and highlights how their activities differ from other social initiatives in Guatemala. In order to do so, a literature review provides a theoretical framework in Sustainable Development and Social Needs to define the complexity implied when meeting social needs. Then, the research outlines concepts and criteria of how social enterprises are evolving in the world, and highlights the evolution of the phenomenon in Guatemala. Finally, the approaches of Byoearth in tackling embedded social issues in soil erosion, and farming, are understood and documented through ethnographic methods, providing detailed information of how Byoearth is activating development in vulnerable communities.

Selected findings from the study and analysis provide valuable insights of the work performed by social enterprises in Guatemala and the problems faced when dealing with communities' needs. These problems are transformed into design opportunities to reinforce Byoearth's social strategy through a design proposal to improve their impact. The design proposal suggests a strategy towards collaboration to enable social enterprises to improve their means and goals, and therefore, work in a multilevel scale to empower communities' to achieve their own form of wellbeing. Designers use design skills to enable new ways of understanding among social actors in order to solve complex problems, foresee their strategies, and visualize simple paths of action. The sustainable patterns of social enterprises identified in this study are compiled as a guideline for activist designers developing solutions in Guatemala, suggesting a path of collaboration with social enterprises when dealing with societal and ecological challenges.

Keywords social enterprises, strategic design, social innovation, sustainable development, vermicomposting, empowerment, Guatemala

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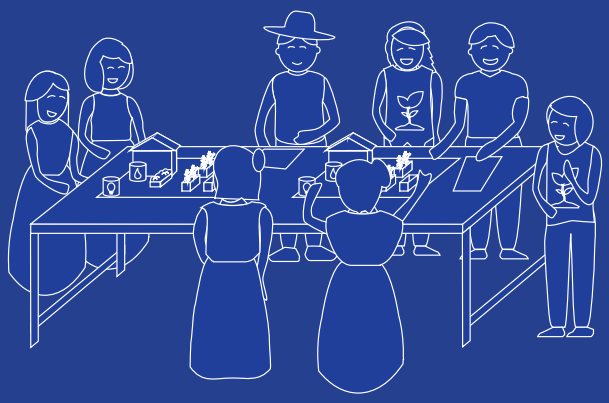


By Andrea Valladares

This is the work of an activist that attempts to understand the role of design in solving social needs with a holistic view of sustainable development. The role of design seems to be amplified being practiced not only by design professionals, but also, by social enterprises, who, in specific cases, have approached the needs of oppressed communities with creative solutions to improve their lives and raise their traditional values.

In the last decades, the profession of design followed market forces, delivering unsustainable solutions to the world. In 1985, Victor Papanek explained the problems that designers have brought forth when he stated:

"There are professions more harmful than industrial design, but only a few of them."
(Papanek, 1985)

The words of Papanek seemed as common sense to many contemporary designers. But driven by economic forces most designers had few options for improvement and continued to deliver unsustainable solutions.

Today, individuals from different walks of life -professionals, activists, and common citizens- have identified ways to change the current structure of the world. Some of them are forming enterprises based on social wealth instead of focusing solely on economic gains.

Is it possible for designers to apply sustainable solutions through these innovative models?
Is it possible for designers to work with a more sustainable brief?

These questions were the catalyst for this research project, which aims to discover the ways in which social enterprises are working and how designers, interested in social wellbeing, may contribute to this body of work.

Developing countries require flexible models that approach social needs and poverty effectively in order to achieve wellbeing and sustainability. The emerging models observed lately in social enterprises present emerging forms of social innovation- reformulating the way we approach communities and develop solutions for social needs. In this emerging scene, design could find new opportunities to contribute to sustainable development. For instance, social enterprises face big barriers in tackling social and ecological problems, which makes it relevant to understand how social enterprises tackle communities' needs, and in which ways can designers contribute to their work for sustainable development.

This study analyses how social enterprises are contributing to sustainable development, specifically in Guatemala. In depth, it examines the case of Byoearth, a local social enterprise dealing with the problematic of farming and soil restoration, and highlights how their activities differ from other social initiatives in Guatemala. In order to do so, a literature review provides a theoretical framework in *Sustainable Development* and *Social Needs* to define the complexity implied when meeting social needs. Then, the research outlines concepts and criteria of how social enterprises are evolving in the world, and highlights the evolution of the phenomenon in Guatemala. Finally, the approaches of Byoearth in tackling embedded social issues in soil erosion, and farming, are understood and documented through ethnographic methods, providing detailed information of how Byoearth is activating development in vulnerable communities.

Selected findings from the study and analysis provide valuable insights of the work performed by social enterprises in Guatemala and the problems faced when dealing with communities' needs. These problems are transformed into design opportunities to reinforce Byoearth's social strategy through a design proposal to improve their impact. The design proposal suggests a strategy towards collaboration to enable social enterprises to improve their means and goals, and therefore, work in a multilevel scale to empower communities' to achieve their own form of wellbeing. Designers use design skills to enable new ways of understanding among social actors in order to solve complex problems, foresee their strategies, and visualize simple paths of action. The sustainable patterns of social enterprises identified in this study are compiled as a guideline for activist designers developing solutions in Guatemala, suggesting a path of collaboration with social enterprises when dealing with societal and ecological challenges.

Keywords: social enterprises, strategic design, social innovation, sustainable development, vermicomposting, empowerment, Guatemala.

PREFACE

The Mayan Cosmovision* and values based upon nature and balance are being deployed by development. Humberto Ak'abal, Guatemalan-Mayan contemporary poet, in his poem "Memories" talks about remembering these values to continue walking forward.

"Recuerdo
De vez en cuando camino al revés:
es mi modo de recordar.
Si caminara solo hacia adelante,
te podría contar
cómo es el olvido."
(Ak'Abal, 1995)

"Now and then
I walk backwards.
It is my way of remembering.
If I only walked forward,
I could tell you
about forgetting."
(Ak'Abal, 1995, translated by Shorris & Sasson)

Ak'Abal's words bring to mind the reflection: Society has a weak memory. Only if we endeavor to walk back some steps we might remember what is important. Then we will be able to continue walking towards a better direction.

*The Mayan Cosmovision, their way of seeing life and the world, is based on self-conscience. For Mayan people the human being is part of the earth, belonging to it, and not the other way. Daily existence and experiences guide the individual to achieve balance and harmony with the world. They seek for love, trust, humanity, and respect to oneself and other living beings. (Cochoy et al. 2006)

This poem was originally published in the Spring edition of Guchachi' Reza (Iguana Rajada) Revista de la Casa de la Cultura de Jugitin

In many cases, development approaches from international aid and government have been inefficient; for example, they may end up dealing with problems of immediate needs superficially without developing first sufficient cultural awareness. In such processes, cultural values and knowledge can be lost from the world in the name of development. To achieve sustainability, it is necessary to acquire knowledge about diverse cultures worldwide, in order to understand the world and how to use its resources without disrupting its ecological systems.

Social enterprises present a platform of close-approach to communities that open new possibilities to develop holistic solutions by preserving cultural values and knowledge. To find these solutions, designers must understand the social enterprise's model and how it could be driven to sustainability, through culture, with designer's skills. By working together, it is possible for designers and social enterprises to discover and encourage the values of some often-neglected knowledge and practices, important to communities with indigenous or particular values, which are not always taken into account in development projects.

This book is intended to be a sustainability guide for social enterprises and a call for designers to use their skills into more sustainable solutions. I hope it inspires to open new collaborations and find paths for sustainable development in which all can use their tools and skills to develop better futures.

Nothing can be achieved alone, and it is appropriate to thank those who have influenced to finish this book.

Special thanks to Byeoarth and the cooperative members of Sumpango, who open their doors for me, my camera, and my questions to explore their work in all senses.

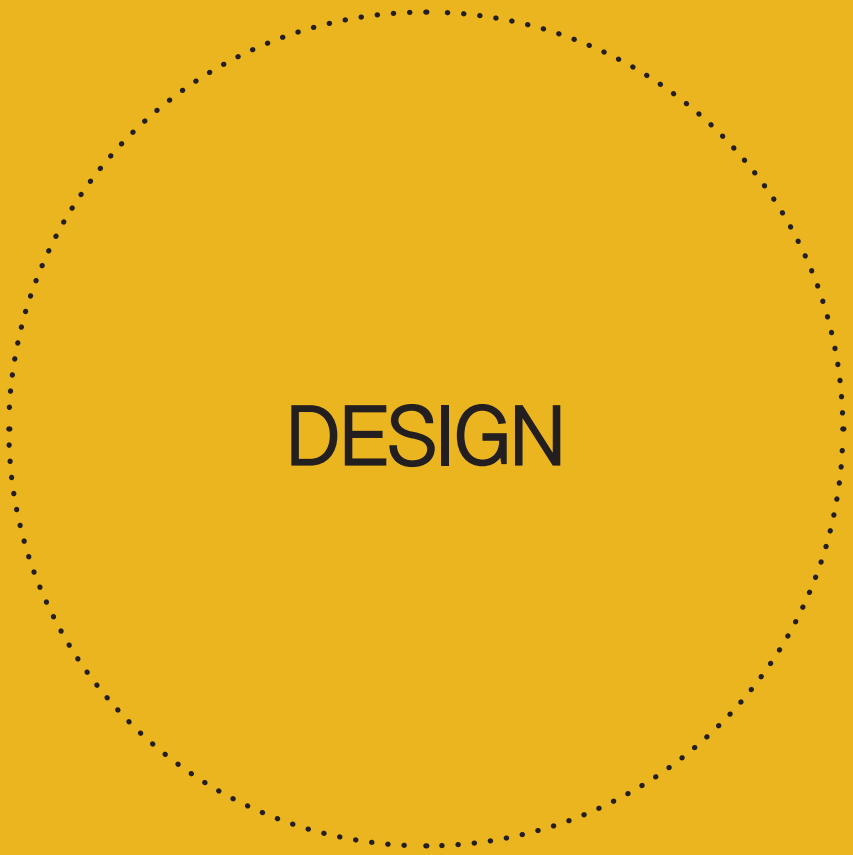
This work appeared easier and clearer every time I spoke to Jack Whalen, my supervisor, and Claudia Garduño, my advisor. Thank you for giving me your clearance and knowledge!

I infinitely thank my great coordinator, Tiina Laurilla, for her systemic view on my education, and the supporting team of the CS Program, specially Tatu Martilla, who help clear my head at the first steps of this study.

I thank Trudy Mercadal for reviewing my thesis and helping me express my ideas in English.

Finally, I thank those who trusted me in this process, and will continue supporting me in my future steps: my partner Jorge, my family, my friends and colleagues.

CONTENTS


DESIGN

SOCIAL ENTERPRISE

Hidden Values
to Empower
Communities

INTRODUCTION 1

1.1 Design for Wellbeing and Sustainability in the Developing World

Many complex ecological and sociological problems of the world are today interlinked with the lucrative distribution of resources and the value we give to available resources. In great measure, the world's economic development drives humanity out of the paths of a sustainable future. Part of the issue includes the development of less-industrialized societies imitating the economic values of industrialized societies. And when new societies imitate such development as a fast and easy way to improve life, unforeseen social and ecological problems arise, which present great risks to local sustainability and their specific social contexts and wellbeing.

In a compilation of Latin American political authors, Alberto Acosta claims "Development in itself is the problem!" and proposes, instead, that wellbeing be an alternative aim to development (Translated from Spanish; Acosta, 2014: 301). Acosta also claims that developing societies cannot follow the values set by developed countries in order to achieve wellbeing, as they are pursuing a misguided development. Wellbeing is based on a plural view of culture and life, while it accepts and supports different forms of living styles (Acosta, 2014: 301-302). In other words, wellbeing should be defined by the culture, through the specific needs of a society and its natural context. Therefore, it is necessary to develop a sustainable society through its ecology, or its own relation to its environment, and open the need to maintain a better equilibrium between people and environment. And, as the varied contexts and cultures can determine, the plural forms and methods of wellbeing will generally be based on increasing quality of life and knowledge of people over time.

The above-presented political views on wellbeing have today acquired the form of different types of social innovation, providing solutions within the existing means of the world. Social innovation is the emergence of "creative re-combination of existing assets" meant to achieve social goals (Manzini, 2014: 57). Among many, social enterprises are considered social innovations, combining a business model with local assets to develop social goals. Social enterprises ought to reinvent market goals and serve needs looking at economic wealth only as a channel, but not as its ultimate goal (Yunus, 2011). Many of these enterprises are looking at people's needs as opportunities. Through this approach they create new values out of forgotten environments, means, and capacities. (Yunus, 2011; Yunus 2010; Nicholls, 2006). Although they apparently develop in the aims of wellbeing when approaching social needs, there may be several risks for the environment when developing

market-centered enterprises, and therefore, in the long run, to their achievement of the social goals. Thus, the above characteristics and concerns of social enterprises should be revised through a holistic view to understand the real constraints and possibilities of this form of innovation.

In recent years, innovative design approaches have developed methods to propose holistic solutions. Service design, strategic design, human-centered design, and other combinations of design thinking are some of these new approaches. Through them, design practice could address more efficiently existing concerns about sustainability and wellbeing. In this role, design serves to propose a future, to experiment, to learn, and to understand through interactions with the environment. In the practice of these new approaches, designers' visual, perceptual, and practical skills make possible to open up a shared understanding and integrate silo-solutions through new processes. (Keinonen, Vaajakallio & Honkonen, 2013). By developing these assets, designers could contribute better in the future by meeting the needs of social innovators, for instance, of social enterprises. At the same time, design would benefit from the recognition of the characteristics and needs of social enterprises necessary for the development of design proposals that lead to more sustainable practices. Therefore, the emerging social enterprises, their potential for sustainable development, and the contributions of design are discussed further through this study.

1.2 Personal Motivation

I was born and raised in Guatemala, a country where only few have access to University, in an atmosphere where socio-economical, socio-ecological, and violence problems affect daily living. This reality is something I cannot ignore - and which I desire to tackle with my professional development. Thus, what may have had a greater impact in my interest and reflections over these issues was my work in the Municipality of Guatemala City. Here, I experienced the risks of approaching social development and integration from public governance in the context of Guatemala, where the municipality is perceived as a negative entity due to its history of corruption and inefficiency. This evidenced the difficulty of approaching social needs with governmental institutions that, despite its big capacity, was reduced to respond to popular calls, private interests, and unsustainable silo-proposals.

I experienced the risks of approaching social development and integration from public governance in the context of Guatemala, where the municipality is perceived as a negative entity...

I joined the Master's degree Program in Creative Sustainability (CS) sympathizing with the idea that small changes could have a big impact on the world. My ideas found a path for growth through the master's discourse of sustainability -using systems thinking, multidisciplinary approaches, communication, and co-creation to develop sustainable societal change-, where I found more holistic ways to use design in my context. To explore the use of this holistic approach and my interest in the Guatemalan context, I searched for an alternative model to serve communities' needs. I chose to revise an emerging model that serves sustainable development by tackling communities' needs in novel ways in Guatemala: social enterprises.

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Today, social enterprises are creating solutions to serve vulnerable communities that government and other social actors have not been able to create. Social enterprises, I think, are individual entities holding great potential for the development of ownership and positive values in these communities. My interest focused on a particular social enterprise, Byoearth, which works with a simple and natural technological process to recover soil, and which has been evaluated as a successful social enterprise. Therefore, the study was developed as a partial collaboration with Byoearth to develop their strategy further, with no binding obligations or clear expectations settled, but as an exploration that held the potential of being a relevant learning experience that could also benefit other emerging social enterprises in Guatemala. Personally, my

focus on this study has evolved similarly to the process traced by social enterprises. I have identified a problem, think about it and its systems, and used creativity and intuition to develop a practical solution and action to improve its situation.

This research and proposal dovetail with my personal interest, as a designer, to discover ways to collaborate with these social innovators. Through this work, I discovered the extent to which social enterprises contribute to sustainable development and what I, as a design professional and creative individual, can do to help social entrepreneurs visualize the challenges they will face. I hope these pages will enable them to promote a holistic cultural, environmental, social, and economic change that improves quality of life of the "considered-poor" by the social system. And, thinking that perhaps I am not the only designer interested to work to diminish poverty and improve people's conditions in Guatemala, my research also intends to open paths of collaboration between designers and social enterprises.

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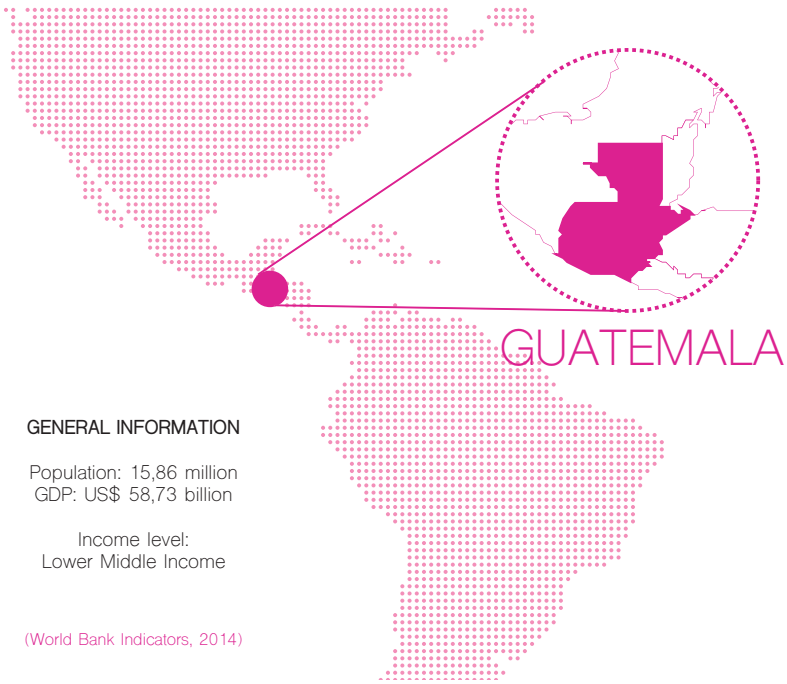
1.3 Background: Context and Problem Framing

From the personal inquiry to the case study

The starting point for this study was a long-term inquiry: How can a developing country, like Guatemala, develop its society to obtain equal rights, autonomy, prosperity, and wellbeing for its people without aggressively destroying its environment?

In Guatemala's society there are highly complex problems that arise from its history, based on colonization and cultural differences. First, Guatemala's population has an unequal distribution of the available resources (land, income, and power). This has developed into a deep, profound fragmentation of the society, where governmental institutions and different societal stratum are rarely trusted. Therefore, those communities in the bottom stratum of the society, unable to improve their social conditions, have had it difficult to satisfy their own needs. Second, Guatemala's politicians and practitioners are trying to serve these communities' needs and drive its society towards 'development', using fixed means and processes that "developed countries" have used in a very different context. As a result, their solutions, in many cases, have turned into highly complex socio-ecological problems that are now conditioning the country's natural resources. However, perhaps we can obtain prosperity and wellbeing with the resources we have today "without conditioning the resources of our future generations", and achieve sustainable development (WCED, 1987).



Location Map of Guatemala, and General Information on Inequality and Social Fragmentation.
(Illustration, Author)
(Data, World Bank Indictors, 2012-2014)

By understanding how existing resources within the social complexity of Guatemala could be transformed into solutions, designers could develop more integrative proposals to promote sustainable development. One model that aims to transform the range of natural, cultural, and social problems of Guatemala into opportunities are organizations commonly known as social enterprises. Social enterprises are concerned with exploring solutions to meet the most pressing needs, which represent a way to preserve the natural and cultural values of the country within the parameters of economic pressures upon development. For the last 10 years, social enterprises have been approaching communities' needs, both social and environmental, by adapting a business model that looks for ways to find financial support for initiatives for the poor in Guatemala. Social enterprises, in addition, are part of the social innovation movement evolving in the country. Through the development of different models, they aim to serve the needs that government, NGOs, and International Aid programs haven't been able to cover, with a new understanding of wellbeing. They should be seen as key resources by social actors to develop further sustainable development in social action. Thus, it has become important to understand the role of design in or around social enterprises work, in order to propose knowledge exchange between social actors and communities to better serve their needs. Moreover, to propose this interaction, it is required to gain a deeper understanding of their model for addressing social needs. From a holistic perspective, how are social enterprises contributing sustainable development for communities through their service in Guatemala?

In the context of Guatemala, some social enterprises have shown effective ways to develop environmental and social wellbeing as a core of their work. For instance, the case of Byoearth and the way they are solving the soil-farming problematic of Guatemala present fixed experiences of how their service deals with specific characteristics of Guatemala's context to achieve their social goals.

FARMING COMPLEXITY IN GUATEMALA

The agricultural problem that Byoearth tackles is a complex socioeconomic problem they have framed as soil restoration. One of the largest economic activities in Guatemala is farming, and yet every year thousands of farming families suffer malnutrition, unable to grow further their skills and productivity as human beings (FTF, 2011). Some of the reasons for this are interlinked social problems, such as social inequality, depletion of resources, and water contamination. (IFAD, 2012). These wicked problems are reinforced by the increasing spread of monocrops and the use of chemical fertilizers. Chemical fertilizers damage the soil structure of the

ground and affect populations indirectly through yields productivity, illness, and environmental degradation (Vannucchi et al, 2004; Rockström, 2009). As natural ecosystems are broken, smallholder "2 hectare" farmers who live from such ecosystems, 76% of the farm owners in Guatemala (Berdagué & Fuentebella, 2011: 22), are forced to look for other forms of income. Nevertheless, in the national and international market the demand for food grows. And, the main actors of Guatemala's social and ecological development have not yet provided a long-term solution to these complex problems.

The different social actors of Guatemala have long focused their solutions on the economic part of the social problem and drive farmers to demean the value of their own knowledge, to feel incompetent and develop a need for assistance. A fundamental actor, the government, has provided political solutions for the people such as a free-chemical fertilizer program. Rural farmers in need, who previously used to rely on traditional methods to fertilize the soil, now use the chemical fertilizer provided by the government for a very low-cost. However, they do not anticipate that consequently the following year the soil would become addicted to that chemical and would need it again to grow the next crops (See further details in Chapter 5). This give-away program ultimately conditions them to buy fertilizers -or demand it from the government- the next farming season. Consequently, this social assistance program is just a political tool that damages the communities, and develops a dependency to farmers upon the assistance provided to them.

Parallel to government's initiatives, farmers occasionally have received aid from international agencies that have similar superficial approaches to the problem. In this case, their actions are often driven by their own particular needs for reaching their institutional goals and by their particular values or beliefs, which also risk developing into culturally unsustainable initiatives. A third social actor, non-governmental organizations (NGOs), act perhaps more culturally and environmentally aware, but have long depended upon external funds that provide hope for the future, but little in the sense of program continuity and farming aid (See further details in Chapter 5). Despite these ineffective approaches, each of these actors has an important role that requires greater research to better address community needs with truly sustainable development.

Contrary to traditional social initiatives addressing farming issues, Byoearth has tackled the problematic from its systemic socioeconomic challenges. Byoearth's alternative model looks upon the values of communities and provides tools to develop their skills and power to support their livelihood– enabling communities to build their own business around ecological practices. Their main objective, to produce and sell organic fertilizer, has been used as an instrument by Byoearth for assisting several NGOs and communities.

Cooperatives, referred in this text, are "autonomous associations" gathered together with a similar economic objective, that pull their resources together in collaboration to have a major development of their activities and profit (ICA, 1995). Byoearth's collaborates with three cooperatives that have created worm-businesses with Byoearth's support. The structure and activities of these cooperatives are explained further in Chapter 5.

At its social core, Byoearth has backed women groups- in farming communities- in building an enterprise that produces organic fertilizer using a 100% natural process based on worms on a semi-industrial scale. This process is known as vermicomposting. Byoearth supports the women in the development of their own ecosystem to ensure their ecological impact through recycling food waste and selling fertilizer. Through this support Byoearth hopes women cooperatives will eventually become self-sufficient. By empowering these women, Byoearth has the potential to provide other farmers in the rural areas with access to a high-quality organic fertilizer that may not only improve their yields and sustain their own families; but more importantly, provide them with a tool to create a positive impact in their soil and environment.

Byoearth is still small and their scope is yet to grow in order to have a significant impact on soil restoration that could mitigate the effects of industrialization. In the last years, Byoearth has experienced a series of problems in scaling up their current social model, which provided a relevant case study to explore design possibilities. Therefore, design is used to draw over Byoearth's service-product strategy for development. This led me to my main research question: How can a design approach assist a social enterprise in improving their service to communities for sustainable development?

In fact, the possibilities of design are unimaginable, depending upon the context and time. The first step is getting designers to understand how they may collaborate in this process. Although it is not yet possible to measure long-term results, the potential for positive effects are today reflected in their strategies, and therefore should be analyzed through sustainability criteria. Designer skills allow us to revise solutions, through "sketching", "modeling", and prototyping to "resolve ill-defined problems" (Cross, 2007: 29, 57). Both designer skills and sustainability criteria provide insights to define future paths and the next steps for Byoearth to provide better services that could benefit the communities and environment. Moreover, this case of design and social enterprise collaboration could also provide insights for social enterprises and designers to collaborate in serving communities' needs creatively.

To summarize, there is a need to open a discussion about possible answers to: What are the problems that social enterprises need to solve? What are the problems that need to be solved by designers? And what are the problems that need to be solved by people?

1.4 Research Questions, Methodology, Focus and Objectives

Designers could recognize new ways to support sustainable development through the study of emerging innovations in the area of development. As social enterprises aim to address social needs, designers could identify multiple entry points, contributions to development through such models. Therefore, this study examines and highlights these possibilities by answering to two questions:

1. How are social enterprises contributing to the delivery of services with sustainable practices in Guatemala?
2. How can a design approach assist a social enterprise in improving their service to communities for sustainable development?

The main objectives of answering the research questions are:
- To lay out the potential and challenges of social enterprises for sustainable development, specifically in their service.
- To propose ways in which design could contribute to enhance or alleviate challenges.

In addition, the research also contributes to collect and analyze the evolution of social enterprises in Guatemala and discuss how design should establish its role towards sustainable development in this context.

In order to understand the approach to development of these emerging middle actors, this thesis explores closely the approach, strategy, and model of Byoearth, a social enterprise dedicated to soil restoration and food security in Guatemala. The social enterprises' services and working model in relation to a women's cooperative is analyzed by documenting stories from different stakeholders of the project in the community of Sumpango in Chimaltenango, Guatemala. Through this detailed study, the research aims to sketch the strengths and weaknesses of the social enterprise model and analyze these practices.

Different methodologies and design tools were applied to provide a holistic view in the study of the complexity of sustainable development when serving communities' needs through a social enterprise, like Byoearth. These processes serve to understand the different scales involved.

RESEARCH PROCESS. Visualization of the research process, steps, and methodology used for this study.

Ethnographic research is used as the main methodology to explore Byoearth's service. Ethnographic research, in Tim Ignold words, is a type of research that "describes the lives of people other than ourselves, with an accuracy and sensitivity honed by detailed observation and prolonged first-hand experience" (Tim Ingnold, 2008, quoted by Pink & Morgan, 2013: 351). In the case of Byoearth, the ethnographic research was conducted in a limited period of 14 days, due to geographical constraints. Ethnographic research, in a short-term period, can also provide relevant information when the researcher combines "theoretical turns towards practice, practical activity (what people are actually doing as the move through the world) and the nonrepresentational (the unspoken, unsaid, not seen, but sensory, tacit and known elements of everyday life)" in the research process (Pink & Morgan, 2013: 353). In an intense research time, the complementing types of analysis: "ethnographic-theoretical dialog" and a "post-fieldwork engagement with material", contributes to the objectivity of short-term ethnography (ibid, 2013: 359). Such methodology is relevant for developing context, where time and limited access to specific spaces are part of research constraints.

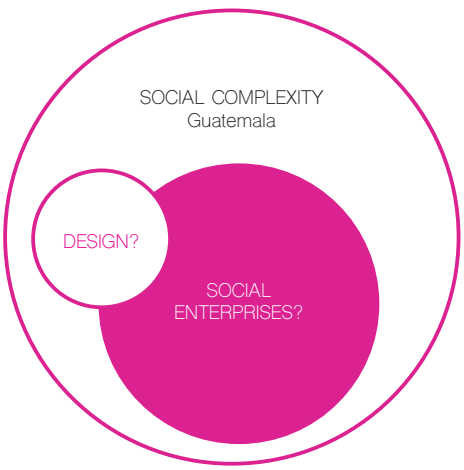
In the case of Byoearth, the analysis is supported by empirical research, a literature review, a compilation of social enterprise initiatives, and context documentation to understand specific aspects of the service-context relation. Through each section, I will explain more on the methods used for the specific research areas.

The analysis focuses on the social strategy in the service that Byoearth offers to communities by supporting women's cooperatives. Byoearth has been very successful in the *Social Enterprise* and *Development* spheres. Several studies performed by incubators, business consultancies and students have provided them with guidance on how to develop further their business strategy. Internally, Byoearth measures their impact through indexes on how many people they serve and how many bio-waste resources they recover. However, these studies draw weak conclusions about the observed social processes. Moreover, during the last years, Byoearth has encountered different difficulties when dealing with cooperatives or communities. As they tried to understand the social challenges they encountered,

I decided to examine the collaboration between Byoearth and one interesting cooperative, Sumpango; which has recently lost half of their members and its entire production. This case serves to visualize the social complexity of different cultural contexts, and the challenges faced by the social enterprise and other social actors involved.

Byoearth was approached to study their mission, their culture as a social enterprise and their challenges. They agreed to participate in the study and its related interviews, and provided documents, reports, and other data that gave an integrated understanding of the company's culture. Through the use of ethnographic methods it was possible to explore closely their relationship with Sumpango's cooperative. The study explains how they deal with soil restoration through a socio-economic approach, by empowering women, while it identifies the benefits and drawbacks of their processes.

Design is used to explore possible solutions to deal with social complexity, which fit social enterprises as well as communities' needs. Therefore, the contributions between designers and social enterprises are explored by a design analysis and a proposal. Through design it is possible to visualize concepts and collaborations to ensure sustainable action by social enterprises. The analysis of the social and environmental practices of this enterprise and its collaboration system provides valuable insights for the social enterprise's future strategy. It is not the intention of this study to say that design is the only way to alleviate complex challenges. It is actually the opposite. The study examines the problem and addresses a real need to understand what design can do.



DESIGN EXPLORATION.
Design is used to explore social enterprises and define how their service operates in the social context of Guatemala.

1.5 Contributions and Relevance to Creative Sustainability Program

This thesis is an exploration about using the knowledge acquired in the Master's degree Programme in Creative Sustainability (CS) to support sustainable development. Creative Sustainability recognizes the importance of multidisciplinarity, continuity, and cultural diversity to develop a better understanding of complexity and act to solve it. The study aims to explore collaboration in complexity through the work of one actor. Therefore, the design research explores strategic collaboration for social enterprises, finding value for them and other actors to collaborate for sustainability.

Through the study, I try to explore a problem of delivering social needs through only one focus. For instance, many social enterprises focus on delivering water solutions, energy, or housing. But, how can they provide integral solutions to the multiple needs that vulnerable communities have to deal within the poverty cycle? In this research, I have found that it is important for social enterprises to focus on their business, on their product, and their customers. Social enterprises are dealing with communities' interlinked needs, and their service, satisfying one-single need, is at risk when other needs are not covered. Therefore, a multidisciplinary and collaborative approach would be needed to develop integrated solutions.

1.6 Structure of this Book

CHAPTER 1 INTRODUCTION

Here I present the general structure of the research, defining why and how I studied social enterprises in Guatemala highlighting the main focus to be on the context explored.

CHAPTER 2 LITERATURE REVIEW

In the literature review you can explore the criteria and concepts on Sustainable Development, Social Needs and Design used for the analysis of social enterprises in Chapter 3, and the analysis and proposal of the Case Study in Chapter 5.

CHAPTER 3 SOCIAL ENTERPRISES & SUSTAINABILITY

This chapter presents the social enterprise movement, its characteristics, and typologies. Here I analyze what are the touch points and shortages of the different approaches and its structures for sustainable development.

CHAPTER 4 SOCIAL ENTERPRISES IN GUATEMALA

This chapter presents the complexity of Guatemalan context and the emerging movement of social enterprises. Social enterprise's approaches are explored in a compilation of initiatives, from the different emerging solutions to social needs.

CHAPTER 5 BYOEARTH

This chapter presents the specific context (Problem of farming and social actor initiatives) and the analysis of Byoearth's processes and services. This chapter should be useful for entrepreneurs who seek to explore other social enterprise's process in order to develop their own.

CHAPTER 6 DESIGN PROPOSAL

This chapter contains a design proposal for Byoearth's social strategy, which suggests new processes that can develop more sustainable results.

CHAPTER 7 DISCUSSION AND CONCLUSION

This is where I expose my conclusions, reflection, and insights that lead me to define how designers could contribute to social enterprises. Here you can explore the discussions and future research and projects that arise from this study.

THEORETICAL FRAMEWORK

2

The theoretical framework provides the background for the themes of *Sustainable Development*, *Social Needs*, and *Design Strategies*. In *Sustainable Development* literature review, I define the criteria set on sustainability to impulse development in developing contexts. At the same time, I review on *Social Needs* literature to build an understanding of empowerment as a more sustainably way to solve social needs. Finally, I review current Design literature to draw on *Design Strategies* used today for sustainability. This review serves as a base for the analysis of emerging social enterprises and the case study used for this research in the next chapters.

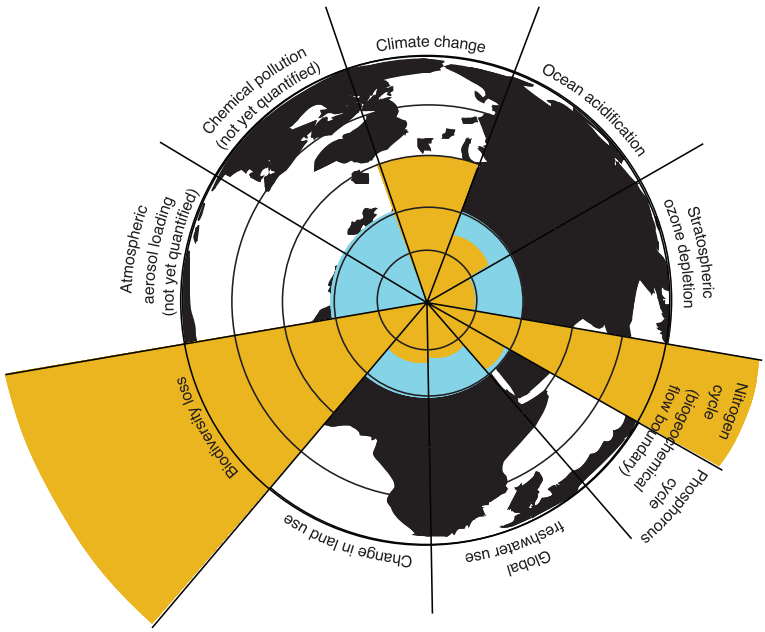
2.1 Risks of Development as we know it

In recent decades, the limitations of nature have shown its presence in distinctive forms. The ecological limits, naturally, have been more evidently harmful in developing contexts, where humans are more exposed and vulnerable to nature. One example could be found in the access to drinkable water. Water pollution caused by chemical fertilizers, or industrial waste, is not easy treated in rivers where vulnerable communities live. However, the community cannot stop drinking from a contaminated river, if that is its only source of water. Thus, diseases caused by contaminants directly harm them. On the other hand, industrialized communities are not suppressed in survival matters, but in their evolution. The state of economic crisis related to resource constraints (e.g. oil extraction in relation to its use) is one big issue frustrating the growth of the leading countries in the world. Researchers and practitioners from industrialized nations have realized that these issues are more complex than previously thought, interconnected in environmental systems, and constrained by the habits and values of the established culture. We, humans are constrained by nature and the resources it can provide; but at the same time, if our human environment is in harmony with natural systems we can be free to evolve on it (Morrison, 1988). Therefore, when aiming for a resilient -self-preserving- ecosystem in the world, the urgency to explore and address the role of today's habits, culture and values on societies' evolution becomes very clear.

BOUNDARIES OF SOCIETY

A recent study from the Stockholm Resilience Center (SRC) has shown how the world's social systems, or man-made systems, are exceeding the recovery capacity of natural systems. The SRC has defined nine "planetary boundaries" that should be considered to maintain the resilience of the natural systems (Stockholm Resilience Center, 2009). This means that by staying within these boundaries, the natural systems will have the capacity to readjust themselves and persist in providing resources to sustain human and non-human life. In their findings, the SRC identified that three of these natural systems have already surpassed their capacity (Climate Change, Biodiversity Loss, and Interference with the Nitrogen Cycle). While these systems are surpassed, the risks of abrupt, or disastrous, changes in the environment that harm vulnerable communities, or humanity as a whole, also grow. (Rockstöm et al, 2009: 472). Overall, the SRC study serves as a call to acknowledge our limits and to reflect upon the relationship between our society and the natural systems. Therefore, this relationship should be

explored through specific societal practices: What are the systemic effects of the daily activities that support our lifestyles; i.e. agriculture, fishing, production, transportation, etc.?



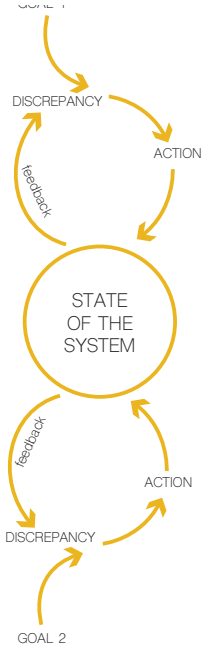
Estimates of Planetary Boundaries surpass of Ecological Systems from Human Activity. The light blue ring represents the safe limits in which society could operate, while the yellow represent the measured impact of society, which is now exceeding the limits within three categories: Climate Change, Biodiversity Loss, and disruption of the Nitrogen Cycle.

(Steffen et al. 2015)
www.stockholmresilience.org

For instance, the practice of agriculture at a global scale evidences alarming negative effects upon the environmental systems. The SRC study evidences the relationship between agriculture and limits surpass. A first negative implication relies on the man-made ordering of land use. As we convert natural ecosystems into agricultural areas, the natural systems are corrupted. Agricultural land use implies systematically in "Biodiversity Loss", which in a local scale compromises the safety and quality of resources, like freshwater and productive soil. In a macro level, industrial agriculture causes great environmental pollution and disrupts the "nitrogen and phosphorus cycles". In addition, for industrial agricultural purposes, the extraction and use of fertilizers converts around "120 million tonnes of N2 [nitrogen] from the atmosphere per year into reactive forms". These reactive forms, in relation to the natural system, cause what we know as air and water pollution. Furthermore, they slowly erode the soil that supports all kind of vegetation life: trees, flowers, and the food we eat. (Rockström, 2009: 474). Thus, if agriculture continues to develop in such a harmful-industrial basis, soon there will be greater constraints in our own long-term capacity to support our food system.

Industrial agriculture, is harmful to the system, weakening the natural and social interactions. A system, social or natural, is capable of controlling its own growth through "feedback channels" (Meadows, 2008:1). Systems could naturally readjust and ensure their evolution by using "feedbacks" with information about their limits before reaching a tipping point. (Meadows, 2008). However, "feedback loops" in agriculture are defective, or broken due to conflicting interests in the social systems. Thus, various simplistic approaches to the problems have arisen through the years.

For instance, soil erosion has been caused by the extensive use of chemical fertilizers, which is a result of diverse social issues. The natural system of the soil requires restoring-components like microorganisms and insects that keep the land fertile, alive, and productive (Akinyemi, 2007: 103). But, while the use of chemical fertilizer starts to be widely considered as a bad-farming practice it remains in use at different scales due to socio-economic pressures. The time it takes the social system to react to these events could define its capacity to recover (Meadows, 2004:1). However, the recovery capacity will rely on improving the exchange of new meanings and knowledge between the actors of the social system (Andersson, 2015: CoSF), and improve the feedback between the social and natural system.

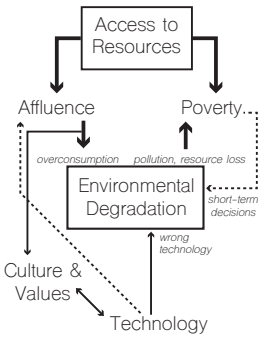


Feedback Systems
(Meadows, 2008)
Illustration: Author

Therefore, as Sharachchandra M. Lélé (1991: 609) exposes in many development cases, the undermining social conditions in farming need to be addressed. The diagrams below presents two views of environmental degradation: first, the usual simplistic view in which it is mostly seen and then, a more complete systemic visualization of the problem. Soil erosion, in the simplistic view, is seen as a case of inadequate soil conservation measures, while it is actually systemically driven by the phenomenon of marginalization of peasants (Lélé, 1991: 610). In such systems interrelation, only after solving the social problems can the environmental problems be solved.

The mainstream perception of the link between poverty and environmental degradation.

Other than industrial agriculture processes, many other industrial processes interlinked to social systems are also harmful for wellbeing. Various negative systemic consequences are evident in the fashion industry through cotton harvesting and garment production and its dying process; or in transportation solutions, through massive use and extraction of oil as a fuel; or, to give a third common example, in technology devices, with the extraction of minerals, and a high-rate of disposal. But, what are the main drivers for us humans to act on industrial means? What are the intrinsic reasons to use industrial processes? And, how could it be deviated?



A more realistic representation of the poverty-environmental degradation problem.
(Lélé 1991, 617)

DRIVERS OF ENVIRONMENTAL DEGRADATION

A considerable amount of literature has explored the environmental degradation from human and industrial activities from different perspectives. From a systemic point of view, the cause is "population growth and material economy" (Meadows, 2004:2) (Holling, 2001). In economics, Richard Heinberg exposes that the main driver is "economic growth" (Heinberg, 2011), while Paul Hawken argues the problem are the forces of capitalist economy when they are based on material values (Hawken, Lovins & Lovins, 2008). From a socio-cultural perspective, Robert Constanza finds that the "biological evolution is slow relative to cultural evolution". The culture, therefore, risks ignoring "long-run constraints" of the environment, and pays the consequences with resource shortages. (Constanza, 1991: 6). These socioeconomic claims similarly expose economy as a driver of the immeasurable growth of material wealth -highly harmful for the environment.

"...there really are no environmental problems per se. Rather, environmental degradation has been caused by human behavior..."
(Koger & Du Nann Winter, 2010).

Additionally, socioeconomic values interact greatly with individual actions, thus an individual can be changed by, or change the environment. In individual psychology, Winter (1996) present the drivers of "environmental problems" as "behavioral problems based on thoughts, beliefs, values and worldviews" (Winter referenced by Koger & Du Nann Winter, 2010: 2). In particular, Deborah Koger and Susan Du Nann Winter (2010) highlight specific characteristics from the western culture, worldviews and behavior, which continuously affect the environment. First, the western worldview is dominant towards nature, encouraging its indefinite use to further cultural evolution. Second, western cultural beliefs also further their own nature of evolution, "the industrial and technological", as solutions in today's environmental degradation, while they can also be considered part of the problem. And third, in response to such crisis, individuals mainly become frightened, because it is hard "to stay tuned for very long [to environmental concerns]... - is too depressing, perhaps too terrifying". (Koger & Du Nann Winter, 2010: 4). Therefore, as these specific psychological characteristics and mental models are not changed, they continue to support the cheap use of earth to support existing lifestyles.

Overall, it becomes clear that the drivers of environmental degradation are intrinsically related to personal and social beliefs, mental models, and lifestyles. The social level, which seeks to evolve, interacts with the personal level, which seeks to control. Although existing western worldview and behavioral patterns have proved to be detrimental to the sustenance of the environment, they continue to spread. Mainly, these values, beliefs, and lifestyles are spread in all parts of the world through development aims.

THE SPREAD OF WESTERN VALUES

Numerous cultures of the world have increasingly adopted western models of behavior. Governed by such western models, much of the indigenous or traditional knowledge of the so-called developing countries has been drowned (Max-Neef, 1991). Western worldviews and values spread through developing nations in the name of "development", first through colonization and then by industrialization, changing the set of rights, and replacing values and knowledge that exist in the culture (Battiste, 2000). Therefore, while development spreads, not only do human rights and education spread, but also systemic causes in the environment and communities, which are shown to be the effects of adopting an unsustainable system. Such development in developing countries also established unequal conditions in social status and as a consequence in the use of resources.

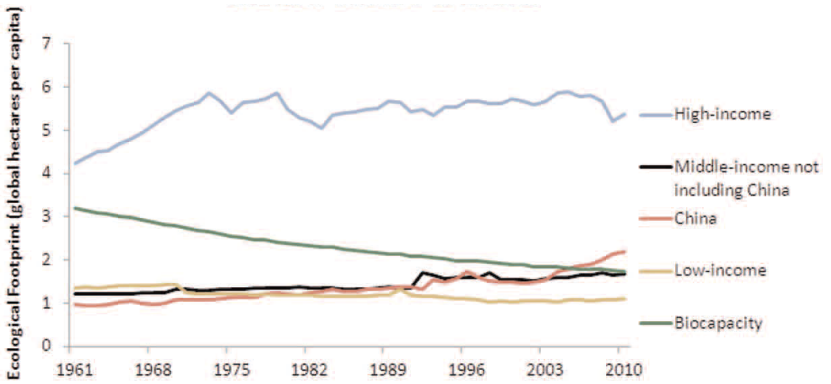
Inequality in the access to resources, rooted in the encounter of two particular cultures with colonization, is one cause of many social problems. One fifth of developing populations still live in extreme poverty and urgently require ways of satisfying their basic needs –at least food and shelter- with the existing resources of this world (The Millennium Development Goals Report, 2014). The world's resources are used in western or industrialized communities to satisfy its material needs through industrial processes (Heinberg, 2011). Meanwhile, the poor can only afford the contaminated resources. Therefore, as systemic drivers and values of western communities spread the challenges of the poor become greater.

"Earth provides enough to satisfy every man's need, but not every man's greed."

Mahatma Ghandi

Material culture is inherent today in many developed or industrialized countries. When aid from industrialized countries approaches developing communities, western material culture also spreads (Max-Neef, 1991: 18). The term "developing countries" is used to refer to communities or countries that are not yet completely industrialized (Collins English Dictionary, consulted in 2015), which perhaps preserve varied indigenous characteristics. When economic development reaches developing communities, consumption patterns and market growth in such communities also rise (Rosling, 2006). But, the current market and its growth do not operate to sustain our environment (Robertson, 2014: 52). Therefore, the growth of market becomes harmful to the development and wellbeing of those whose daily subsistence depend in great measure on the environment.

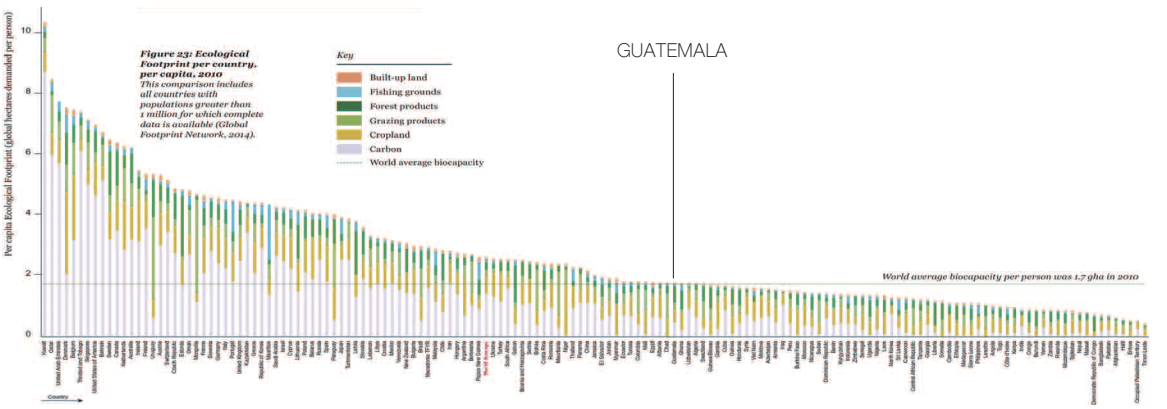
FOOTPRINT BY INCOME
Footprint by person increases through income gains. The higher the income is, the higher the ecological footprint.
(WWF, 2003)



In other words, as 'human development' through the aims of industrialized societies reaches other cultures (developed countries aiding developing countries), ultimately, they also adopt the negative silo-values on materials, consumer habits, massive productions schemes, and systemic gaps. As it is shown in the graph below, when income is higher ecological footprint also increases. This means that at the rate populations are being "developed" economically, environmental problems and societal problems gain complexity, the ecological systems are broken and vulnerable populations suffer the consequences of contamination and lack of resources.

On top of the human impact over the environmental degradation, happiness is also another interest that promotes a change of values far from material values to new meanings. Although development has brought social benefits and better status to many societies, the accumulation of wealth can only make people happy to a limited extent (Robertson, 2014: 52) (Happy Planet Index, 2006). Therefore, the excess of material wealth also plays a negative role in an individual.

FOOTPRINT BY COUNTRY
Industrialized countries with high footprint, emerging countries within the limits of the world's bio capacity, and developing nations under the average of bio capacity per person (1.7 gha in 2010).
(Global Footprint Network, 2014)



VALUES OF INDIGENOUS KNOWLEDGE

Because of their different development, indigenous cultures are undervalued. The world's current economic system does not value their cultural knowledge and lifestyles (Max-Neef, 1991). Hence, they end up losing their traditions and identities and become part of the bottom of the pyramid – the bottom of a capitalistic system which has been inefficient to recognize diverse values to satisfy everyone's needs (Hawken et al, 2008). Susanna Khavul and Garry D. Bruton (2013) find that the cost of general adoption of silo-behaviors reduces the access to alternatives for other forms of development, and deviate positive changes (Khavul and Bruton, 2013, 288). But individuals praise other values, such as safety, love, understanding, belonging, freedom, etc. that are poorly included in the current dominant system (Max-Neef, 1991: 17). Thus, many developed countries are, slowly, realizing that many of these values are lost, or in process of being lost, in their lifestyles, while recognizing that the remained indigenous cultures still have such values rooted to their culture (Wilson, 2005) (Battiste, 2000).

It is relevant to identify how to lessen the impact of our human activities in the world, regenerate the existing overloads of the system, and find new ways to enjoy the resources of this world. If the western form of living is harming the environment, what should the new lifestyles be like in order to reverse environmental degradation? Koger and Du Nann expose that there is not one sole legitimate worldview that could solve environmental problems, but that all that exist can be tweaked to find new values in nature. (Koger & Du Nann Winter, 2010). Therefore, instead of promoting a silo-view and silo-way of development (western) of the world, it could be relevant to explore hidden values and knowledge among other cultures and a positive interaction between them.

2.2 Sustainable Development and Human Needs

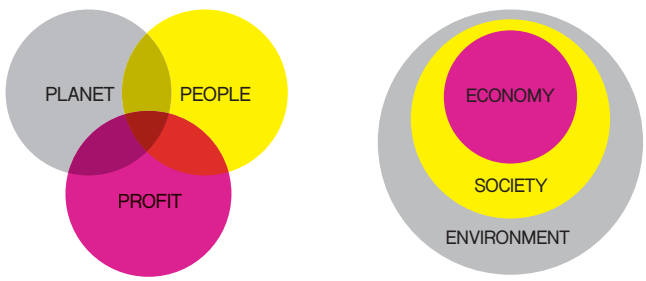
As it was exposed in the last section, a development within the environmental system, sustainable development, requires new forms of understanding the world to adapt locally and globally to the systems and its constraints. New forms of solving local problems may be hidden within unvalued knowledge or forgotten skills of indigenous cultures. The challenges of social system and environmental limits, defined above, require conceptualizing 'sustainable development' as a development that maintains cultural and environmental diversity.

For a long time, sustainability and sustainable development have been widely used to express any kind of green or less-harmful action. However, today different literature draws a more complete notion of sustainable development and its relation to human needs, as well as culture conditioning its satisfaction. A change of values in the economical system could open new ways of maintaining and regenerating the environment and the knowledge stored in cultures, while guiding a new growth of social and individual capital.

COMPLEXITY IN SUSTAINABLE DEVELOPMENT

Sustainable development is defined widely as "meeting the needs of the present generations without compromising the ability of future generations to meet their needs." (WCED, 1987:43). In order to meet such needs sustainably, three dimensions should be taken always into account: people, planet, and profit (Elkington, 2012). But, when taking decisions over the use of different resources, the decision-makers should always be aware of the hierarchical limits of these three systems (Cato, 2009). In Cato's scheme, sustainable development is achieved when the environment can grow resources at a higher rate than its society can consume it, and when economy is limited to the satisfaction of human needs.

In the first model sustainable development is seen as a balanced action, while the new model presents environmental and social wellbeing as the foundation for economical wellbeing (they still work together but through a hierarchy that defines their limits. (Green Economics, Cato 2009)



BALANCED MODEL
(Elkington, 2012)

HIERARCHICAL MODEL
(Cato, 2009)

In a global scale, sustainable development should meet all types of human needs into achieving wellbeing. Welfare, or wellbeing, relies on the satisfaction of the fundamental human needs (Max-Neef, 1991: 16). But, as needs change over time, wellbeing implies a continual process of improvement, where there are continual "gains [for] people over time" (ibid, 1991) (Khavul, 2013: 287). Wellbeing, therefore, is subject to a clear understanding of human needs and its satisfiers and of the capacity to maintain satisfiers over time, from those that cover essential needs to those that increase happiness to a human being.

Although we all have the same human needs (shelter, food, etc.), each culture satisfy them in different ways (Max-Neef: 1991). "Fundamental human needs are finite, few and classifiable", they don't change in time or place. Instead, what varies is the means to satisfy these needs, which are dictated by culture (Specific beliefs, practices, societal approvals, habits, etc). (Max-Neef, 1991: 18). In this relationship, when the culture changes, new satisfiers are adopted (Max-Neef, 1991: 18). This means that they change also with culture, which makes it very difficult to find solutions to satisfy needs, solutions for sustainability.

Therefore, a sustainable social system will be that in which people can get to know, adopt, and satisfy their needs to be well (See Figure). The changes of culture -from materialistic values to natural and cultural values- could, and perhaps should, also occur at little gains, continuously.

Concept Visualization: the continual interaction between culture, needs and satisfiers in the achievement of wellbeing. The need is stable; what vary are knowledge, culture, and the satisfiers.
(Author's illustration, Max-Neef's description on the interaction between wellbeing and human needs.)
(Max-Neef, 1991: 16-18.)

To initiate the process of cultural change, development aiming for sustainability needs to address today's economic values and transform people's habits and mental models to holistic understanding and actions. This form of satisfying needs –by understanding human and natural systems- is well expressed by Margaret Robertson's on its recent collection on systemic dimensions of sustainability:

> "Sustainability is about seeing and recognizing the dynamic, cyclical, and interdependent nature of all the parts and pieces of life on earth, from the soil under our feed to the whole planet we call home, from the interactions of humans with their habitats and each other to the invisible chemical cycles that have been redistributing water, oxygen, carbon, and nitrogen for million of years." (Robertson, 2014: 1).

Sustainability is a dynamic learning process, where the object (person, place, soil, community, society, or natural system, or organization) has the "ability to adapt to change" (Robertson, 2014:5). In this concept of sustainability, it is not only the life of some, which is sustained, but, instead, the life of all (humans and its natural supporting systems). Therefore, sustainable development requires development actions that improve the existing world and build towards preserving and improving systems' dynamics.

CULTURE FOR SUSTAINABLE DEVELOPMENT

Sustainable development requires adopting new economic values. As we have previously discussed, quality of life cannot only rely on economic wealth, but also on values that provide wellbeing in the long run. The values of economic wealth should be changed to enable development to respond to the natural systems dynamics (Hawken et al, 2008) that support human life across time. Development towards sustainability requires valuing nature and culture according to economic standards (Hawken et al, 2008). Therefore, a new way of addressing sustainability should include reestablishing "meanings" and new values for a sustainable interaction between the social, ecological, and economical spheres (Andersson, 2015, CoSF) (Fuad-Luke, Hirscher & Moebus, 2015). For instance, new values can be defined by way of establishing the improvement of environmental services and the social benefits to culture. Achieving such actions for sustainable development requires changes in knowledge creation and involvement in social systems, promoting systems' regeneration within current dynamics.

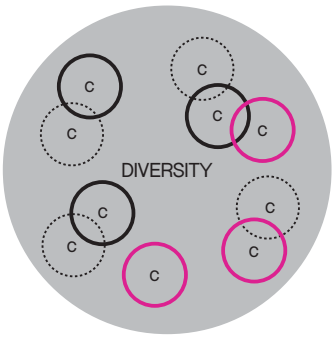
"We live in this time. Time is more important than place. Our values are not place-based, they are time-based." –

(Hans Rosling, 2015)

We have previously discussed culture as one negative component compromising the growth of society and environmental systems. Although in order to prevent such risk, it is necessary to activate culture as a component of sustainable projects and share different worldviews and meanings. Meaning could be given by cultural activation. Culture is simply the human way of living (Rouhinen, 2015: CoSF). Cultures carry a collection of traditions, beliefs, and meanings that drive a person to act. Culture acts upon sustainable development as a mediator for adding meaning to people's actions (Stockholm Resilience Center, 2015) on a daily basis, where the changes to a sustainable future can be achieved. Therefore, culture is often seen as a fourth component of sustainability, establishing an interaction between the other three pillars (Hawkes, 2001).

The relationship between culture and sustainable development, for Phillipe Van der Broek, should be understood in the sense that culture is a foundation for sustainable development. In such schemes, culture should be diverse and coherent at the same time, where various groups find coherence in their meanings and values, but a platform allows the interaction of their differences (See diagram). When you have cultural diversity, system dynamics increase and transversal learning occurs. Sustainable development, then, welcomes diversity as a value and supports the interaction through bridges of meaning. (Vanderbroek, 2015: Keynote CoSF).

Vanderbroek's concept, all the structures, initiatives and processes for sustainable development should bring diverse values and knowledge into a common ground of interaction. This means to develop more active participation, collaboration, and empowerment models for cultural and natural values to be exchanged —enforce flexible models, which allow collective learning and individual growth to evolve as a society —.



PLATFORM FOR CULTURAL ACTION. Concept Visualization. A platform where diverse beliefs and knowledge interact in and find coherence in meanings to their actions in sustainability.
(Authors Illustration, Van der Broek description on cultural diversity interaction)
(Van der Broek, CoSF, 2015)

2.3 Action Strategies in Sustainable Development

The power of individuals to act for a sustainable future is still suppressed by the current social system, the monetary values and conventional notions of what we are supposed to do. Even the most enlightened people find it difficult to act sustainably when the whole system is unsustainable. Therefore, a conscious redesign of the self is required of everybody today (Manzini, 2015: 2). Moreover, the provision of an environment that promotes change could contribute to it.

SOCIAL NEEDS

In the 1940s, Maslow created his concept of a hierarchy of needs, in which greater needs -social, self-esteem and ego needs- are set above several "basic needs" –such as physiological and safety (Gambrel and Cianci, 2003). This linear conceptualization of 'motivation' has established an idea of development that argues that people should first satisfy physical needs in order to reach self-improvement and autonomy. Maslow's theory has been evaluated by Hofstede (1984) and Nevis (1983) and defined as particular to U.S. middle class, which means it is particular to a social context of individual values. Therefore, its established models of satisfaction of needs do not apply across all cultures, least in those who rely on collective values (Gambrel and Cianci, 2003). Instead of this model, Max-Neef proposes that needs should be addressed in an iterative way, as an "interactive" system (Max-Neef, 1991: 17), addressing the underlying needs- such as empowerment and collaboration- above basic needs.

Social needs and their complex interaction should be understood and satisfied effectively to anticipate any social and ecological risks (Conklin, 2005). In many contexts, services and solutions from government and aid organizations have been mostly ineffective and insufficient to deal with complexity in social needs. Therefore, a new action plan for development should include people's opinion and knowledge, their power and their capacity to collaborate. As we have discussed in the previous section, strategies for sustainability should enforce the awareness, self-sufficient, and psychological needs that are behind our behavior.

Some strategies dealing with individual issues through changes in the social system include empowerment, participation, collaboration, diversity, communication, experimentation, and flexible structures. I will explain further how are some of these strategies applied in the following pages.

EMPOWERMENT

In a general view, the efficient delivery of services related to food, housing, transportation, health, education, and other positive products might result from satisfying the needs of belonging and self-sufficiency, which are intended to be satisfied by empowerment and resource provision. For instance, investing in empowerment and resources for the poor has shown to reinforce the development of other basic, more visible, needs (Muhammed Yunus, referenced by Sarasvathy, 2008). Empowerment and self-realization is the need for power and resources to develop oneself.

Empowering could mean enabling power to others. Enabling power for a person could be achieved in several dimensions: (1) power to be confident and conscious, (2) power to increase abilities, earn an income and gain access to the market, (3) power to change their house, their community or country, and (4) power within an organization that enhance individual abilities in order to change power relations (Gobezie, 2011). Such dimensions of empowerment involve intangible resources like mindset change, or more concrete resources like access to water, funding, or education. New means, ideas, worldviews, and structures can also transfer power between the different dimensions.

In developing contexts with uncovered basic needs, empowerment provides the capacity for individuals to act upon their own needs (Yunus, 2011). In the context of sustainable development, empowerment aims to enable skills that open possibilities for people to develop, individually and socially, in sustainable ways (Fuad-Luke et al, 2015). Through empowerment, it is possible for one person to achieve becoming active in his or her environment and transform it to enable resources and hope for their neighbours, acting upon its social and environmental wealth.

PARTICIPATION

Participation can ease the satisfaction of needs within the existing culture, involving the locals in the development of projects to increase their wealth. As Conklin stated, "without being included in the thinking and decision-making process, members of the social network may seek to undermine or even sabotage the project if their needs are not considered" (Conklin, 2005). Instead, a project will benefit of integrated processes where everyone is involved through obtaining different views of a problem. The individuals involved will see the problem as part of their own responsibility and be empowered to act towards solving it. The level of efficiency reached in involving more people in a project could depend on the commitment each person has, their

principles, and their role (Max-Neef, 1991: 12). In addition, the participative model provides a more holistic view of the issues, allows context-based solutions, instead of usual ready-made solutions, and provides more sustainable future scenarios.

Though many people could be sceptical about participation due to negative experiences in the past, there are ways to ensure good results through few practical arrangements. For Paula Siltonen & Matti Hämäläinen a good participation process requires setting an adequate environment where all individuals have a similar level of participative power. To do so, the process should be carried in a comfortable workplace, include a perceptive neutral facilitator, a common goal, and a common base of knowledge — where stiff mental models could be diminished (Siltonen & Hämäläinen, 2004). In addition, techniques like "dialogue, role games, brainstorming, scenario building, appreciative inquiry and active listening" can be efficient to reach the goals of a participative process (ibid, 2004: 7). Furthermore, participation processes are learning processes that could enable small social responses: such as awareness, new behavioral changes, new individual questions, and alternative ways of acting in the personal and social level (ibid, 2004: 11). Therefore, by using participation as a strategy for sustainability, individuals are empowered to support sustainable actions (as they see others being active); and, at the same time, behavioral changes in communities are reinforced when providing new knowledge and power that tweak their mental models.

COLLABORATION AND DIVERSITY

Social needs can be multidimensional, and therefore require collaboration from multiple actions. Problems are interlinked, parallel, consequently and particular (Max-Neef, 1991:17). While some people could need only a bit of motivation, others do need a lot of technical and knowledge support to satisfy their own needs. Therefore, to better address these problems "transdisciplinary research and action" is necessary. (ibid, 1991: 18). For sustainability, silo-knowledge should be transformed into collective knowledge. Systemic problems may not be solved through one single level of empowerment or resource or from one single point of action. Understanding and tackling such problems require a multiple and integrated form of intervention of empowerment in various levels.

People who "struggle [on a daily basis] with problems, opportunities, and ultimately the meaning of life", should "(re)discover the power of collaboration to increase their capabilities" (Manzini, 2015: 3). In collaboration, emotional links, meanings, and an efficient use of resources vary in accordance to the

connectivity of a team (Losada et al., 2004: 760). To increase meaning in culture, collaboration can provide both good and bad results, depending of the team dynamics. Therefore, for sustainability we need to drive collaboration to evolve in positive dynamics and always with the common goal of developing a sustainable social and environmental system. Perhaps in diversity this can be achieved.

Diversity for collaboration can be found in local solutions. Hans Rosling claims "the improvement of the world should be highly contextualized" (Rosling, Ted Talk: "The best statistics you've ever seen", 2006). Through a variety of solutions, experiences could develop new knowledge and possibilities of development. Diversity should, indeed, be improved within collaboration. With a diverse group with different experiences, feedback (see section 2.1) and interrelation between human actions and environmental degradation are easier to identify. For sustainability, diversity enables forms to understand the global as a whole, dynamically changing, with specific local characteristics, to act better in the global system.

NEW STRUCTURES TO ADDRESS COMPLEXITY

When dealing with sustainability issues related to social complexity the main responsibility has been placed on governments. Governments are identified as the power entities that provide "food security, water, sanitation, and healthcare" to the population. Nevertheless, many governments are "failing" totally or partially to provide such services, mostly in developing countries. Instead of solutions, violence, starvation, and ecosystem destruction prevails when "failing" governments rule. (Robertson, 2014: 55). In addition, governments, Non-governmental organizations (NGOs) and International aid (active social actors) have been treating the needs of developing communities as a problem instead of an opportunity. This has had clear implication in the development of the systems that provide services for them. They have also become complex, but ineffective, and mainly distrusted, as premises remain unfounded; people have become dependent and both the service provider and the service receiver have no feedback loops to keep them interested.

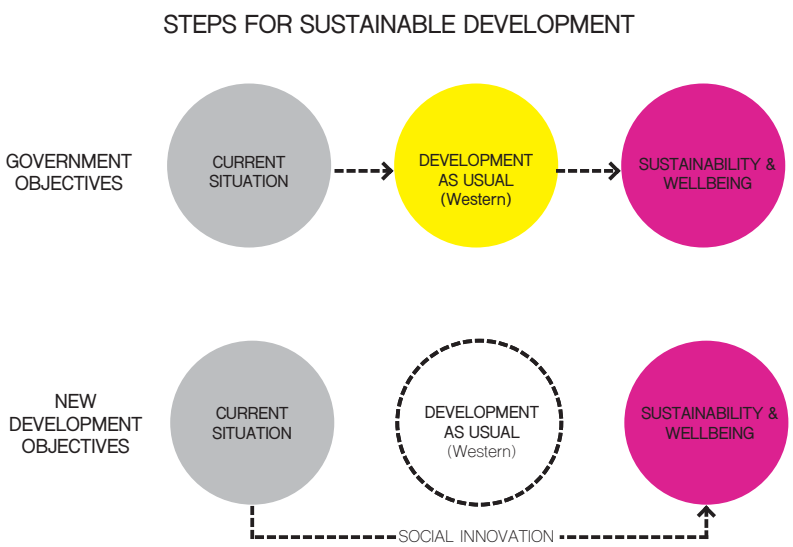
Governments are constrained by their political vision to mainly consider ready-made solutions that do not change as quickly as social systems, and therefore are inefficient in the preservation of the natural system (Léle, 1991: 618). In addition, the bureaucratic nature of government blocks their own action when dealing with a crisis, conditioning citizens and public trust in politics (Max-Neef, 1991: 2). Government, instead, should aim to open their

processes, where citizens' "micro-organizations" create solutions to integrate the "social fabric" (structure of positive connection between the societal actors) that contribute to solve by gradual measures the social problems (Max-Neef, 1991:10). But this rearrangement of government could take a while to change.

To start the changing process, it is valid to find new structures that help set a basic environment for sustainability. New structures for sustainability should be flexible and practical, allowing a learning experience to understand reality better (Max-Neef, 1991: 14). New structures should allow a "sequence of large scale experiments" (Vanderbroeck, 2015: Keynote CoSF). This allows visualizing growth as a learning process in which things evolve almost naturally, without disrupting the system, but going along with what exists in the environment and social system.

SOCIAL INNOVATION

Fortunately, activists working in social problems are reestablishing creative flexibility and freedom through innovative ideas, adapting contextual needs to global requirements. Small and flexible organizations can operate in different ways within social systems. Such structures have greater flexibility, where culture can be diverse and adapt to ecological conditions, in order to develop solutions for sustainability. These social innovation structures are also more open to continual evaluation and feedback systems in which the processes and principles could be improved. (Manzini, 2015).



SOCIAL INNOVATION AND WELLBEING. Social innovation is seen as a form to change development, to improve the conditions of the most vulnerable, and perhaps establishing new routes of development based on the community's values. In this new form of development, there is hope of jumping to establish wellbeing for a country without committing the same mistakes of developed countries. (Author)

Some of the existing social innovation forms are compiled here:

A. Social Enterprises:
Social enterprises arise seeing economic and business development as key for social development. Many social enterprises use Amartya Sen's idea of development, which finds "human freedom" in income as a means to achieve independency and wellbeing (Sen, 1999: 3). Sen's idea of development enable solutions for social problems to be implemented through economic gains. They aim to solve social problems by way of a business model, supporting their activities and time through their gains in a sustainable model. Such innovation aims to solve social needs and the root causes of its constraints, environmental degradation and economic development, to open new possibilities in today's world. The next chapter will further present social enterprises and their networks to innovate for sustainable development.

B. Grassroots:
Grassroots are "political initiatives driven by communities", acting in opposition to powerful organizations at the top levels of society. (Manzini, 2015, 79) Ezio Manzini, in his book *Design, when everybody designs*, describes Grassroot organizations as formed by citizens, which gather to support a solution to a common problem. They share a same location or community and a particular interest. Such forms of innovation bring people with at least one common interest together to act creatively in order to solve a problem and broaden the perspective of other citizens or the government. (Manzini, 2015: 79-80).

Grassroot initiatives open inspiration and bring new ways of looking at problems, enabling new and more sustainable solutions to replace old, often unsustainable solutions. And, while things change through grassroot initiative, it makes possible for citizens to learn over time and transform their environments for better experiences and quality of life.

C. Bridging Initiatives:

Proposals that rearrange the existing environment into a more inclusive, more flexible, or more sustainable environment require links to the existing systems. For Ezio Manzini (2015: 90) bridging initiatives aim to look for channels between existing organizations, means, and environments according to specific contexts, needs, "logics", and varied scales. They are structures that aim to connect one need with a solution as a win-win opportunity for distant actors- that could not meet otherwise. Their role is to provide that environment to begin with a framework to act (ibid, 2015: 90) that enables several actors to be successful.

These emerging structures are opening new possibilities of innovation for wellbeing (ibid, 2015), enabling new explorations for the satisfaction of human needs. Their contributions are similar to design, clearly explore the social constraints to provide alternative designs to what they see as negative (ibid, 2015; Fuad-Luke, 2009). As they reach to disrupt other areas in the context, like economic and political patterns, they provide a good example for activist designers that aim to contribute with their designs to explore new paths for sustainable development.

2.4 Design for Sustainable Development

Design can address sustainable development in varied ways, from defining specific characteristics of the materials to defining the forms in which an object is used. In its action form, design is an act carried by any human, but improved by practice, study, and reflection (Manzini, 2015, Fuad-Luke, 2009). It is not just a profession, but it evolves in everyone through reflection of what is needed in the world. Therefore, design potential need to be defined and understood carefully, to ensure its future steps are driven to better results for humanity.

"Design is the action aimed at changing existing solutions into preferred ones." (Herbert Simon quoted by Fuad-Luke, 2009: 2). 'Design' encompasses 'the collected experience of the material culture, and the collected body of experience, skill and understanding embodied in the arts of planning, inventing, making, and doing' (Archer, 1979, quoted by Cross, 2007). For Cross (2007), such capacity of design has first served to understand a problem better. Furthermore, design, uses the skills of visualizing, foreseeing in a drawing, model, or prototype, to provide an idea of the future to solve human needs better (Cross, 2007). The visualizations, prototypes, or sketches serve to evaluate the solutions and improve them before an implementation process.

The greater amount of information to develop a prototype helps to better solutions to reach the desired goals. When defining future goals, design acts like a process, not a definite solution. (Cross, 2007). To improve this process design should work with other types of knowledge that may understand today's world differently. Primarily, design should work with those that are dealing everyday with the problem. Then, it should work with those who can connect the specific factors to the whole, including economists, geographers, environmentalist, scientists, etc. Finally, with those in power to make decisions that can enable a change.

For sustainability, design as a shaping process should work more closely to address solutions, and integrate knowledge and action to satisfy the different short-term and long-term needs of society. (Fisher, 2000).

NEW FORMS OF DESIGN

Until recently, the needs of developing communities have not been commonly seen as design opportunities. Such needs have been covered by the ingenuity of people, the adoption of solutions from other cultures, and daily creativity to transform what they have at hand. In addition, new actors in society have also use their creativity to transform their environment and use their means to change the realities of developing communities. These two groups of designers can be called "anonymous or non-intentional designers" (Fuad-Luke, 2009: 2). Their creativity and potential can be used to do positive changes in the world; but this is not the case where traditional cultural and environmental values are twisted, into material values. As the adoption of the material culture spreads, people with urgent needs turn their solutions into ready-made solutions, with great inefficiencies, that affect their lifestyles in short or long run.

Whatever their condition, interacting closely with the cultural issues and resource constraints, evidences a potential role to find and power solutions (Fuad-Luke, 2009: 2), being able to become a positive actor in society. Therefore, design, as a profession, could improve the means of entrepreneurs and activists (Fuad-Luke, 2009) to enable better solutions that can have immediate and long-term effectiveness to solve the real needs.

As we have discussed, sustainability today requires the understanding of everyone's contribution to the re-design of solutions and patience for the process of individual and collective learning. Design could be seen now as an activator that provides tools that transform the cultural situation, knowledge, and experiences and provides guidance to achieve the desired integrative future. It could also define its role as a support profession for innovators, already working for those goals. For this, designers must redefine the design profession into developing new skills that facilitate collective understanding (Manzini, 2015). As I have shown in the previous pages, in the new design process for sustainability the designer is no longer the only creator, but utilizes his or her sensibility to find patterns, shape the future, and engage in communication and awareness to guide other experts in the development of a shared goal and solution.

DESIGNING COLLECTIVE CREATIVITY

"The clashing point of two subjects, two disciplines, two cultures ought to produce creative chaos."

C.P. Snow

People can find new ways to use their perceptions and assets in innovative solutions by encouraging creativity within the social capital. Designers could establish a creative space for individual and collective creativity to evolve. To explore such a role, Gerhard Fisher (2000) proposes a framework of operation for designers to obtain creative collaborations. Individual creativity occurs through a supporting system of help and critique and a demand that constrains and impulses the design. But collective creativity requires a more complex support system. First, it is necessary to extract the ideas of different individuals. Second, the ideas should be dialogued and negotiated. The challenges then for a designer, therefore, relies on finding tools to uncover the "tacit knowledge", develop a "shared understanding", and create a collective argumentation that compresses a integrated creation with "meta-understanding". (Fisher, 2000: 531). Furthermore, designers should be capable of dealing with the "nature of power structure" (Dovey Quoted by Fuad-Luke, 2009: 18) suppressing the inclusion of different perspectives inside a debate. For creativity and open collaboration this could be the most important aspect to tackle.

ROLE AND IMPACT OF DESIGN(ERS)

The role of designers in the new arena of sustainable design is being explored in social innovation. In this field, the DESIS-Network (Design for Social Innovation towards Sustainability) has been studying how social innovation occurs across different contexts and how the design could contribute better to it. For DESIS, design and designer capabilities needs to be fostered and show how it creates value in order to improve their possibilities to act upon sustainability. In their view, design is enabling social innovation to increase "meaningful social changes", which mainly happens "in collaboration with other stakeholders" (DESIS, consulted in 2015).

Ezio Manzini explains that social changes are happening by individuals innovating, who design without design expertise (Manzini, 2015). Therefore, design expertise is needed in order to take new routes, to support the needs and social action of those changing individual environments. Here, the design professional should contribute by adding their expertise knowledge, and

provide high-quality solutions that ease significantly the difficult task (Meroni, 2015). In this context, the design professional needs to establish new methods to reach such high-quality that provide them with the experience and skills needed to solve the new challenges of sustainability which include, as we saw in the previous pages, more interdisciplinary work, better communication, and to design the process to learn and evolve over time.

In this new nebulous future of design, the new roles of designers can be confused with ones of social facilitators, which aim to improve social processes. To be clear, DESIS positions establishes design to be an integrative and creative process, with results in other scales of sustainability, economy and ecology (Desis, consulted in 2015). As the new possibilities of design are yet to be established, it is required to define how design interventions are improving social innovation, defining how over a period of time they can improve social conditions. This requires establishing an evaluation method with a starting point and end point to measure the impact of the design action (Manzini, 2015b). In the context of social innovation, such measurements will define in specific cases, how design can contribute to social change, and how it creates value to other social actors and the contexts in which they operate. If they do create value, this will represent a tool to establish new collaborations in which designers can use their skills to improve social innovation.

DESIGN FOR DIVERSITY IN FARMING

Despite the notion of humans as negative actors in the environment, there are examples showing that humans can create a positive impact upon their environment. For instance, in Tajikistan, the Yaghnobi people have support their livelihood through their ingenious farming methods mixing different crops and seeds in the same field, which has maintained a rich green territory in the context of a dry arid mountain (Haider, 2015: Keynote CoSF). Examples such as this one serve to make us question our own conceptions of human involvement as negative. In fact, we can use our "own culture as a resource" and articulate new possibilities (Vanderbroeck, 2015: Keynote CoSF).

In the farming scene: there are various alternatives to industrial agriculture, which link culture as a resource, and not as a dominator. I will present three of them:

1. Organic Farming

Organic farming is turning back to our culture to heal our own health and the planet from the effects of industrial farming. Organic farming uses a set of natural management practices that restore and maintain "ecological harmony" for crop production. Organic farming can also be identified as "natural" or "eco-friendly". As an important way to preserve our health and the environment, the practice of organic farming does not use petroleum-based chemicals (fertilizers or pesticides), but identifies natural elements to deviate the different challenges that farming may present. Instead of using fertilizers, organic farming utilize "crop rotations, cover crops, and natural based products" to ensure the minerals are stored back in the soil and prevent pests. (Akinyemi, 2007: 1).

In a systemic view of farming, it is understood that nutrients are not only materials, but part of the work of millions of microorganisms, insects and interactions that live in soil. Organic controls, contrary to chemical management in agriculture, allow natural restorative processes through ecological processes, by ensuring that these microorganisms and insects stay in the system. For instance, organic farming allows worms to restore the soil while they eat and defecate, or bees to contribute to the important task of pollination. (Akinyemi, 2007: 103). Therefore, the growth of crops does not rely only on nutrients inputs, but on the optimal conditions for systemic functioning.

2. Permaculture

Permaculture is a term coined by Bill Morrison. For Morrison, it is a type of design for "harmonious integration of landscape and people" (Morrison, 1988: 7). Permaculture focuses on existing agricultural lands, on restoring them by re-thinking their natural-integrated agricultural systems. In this form of agriculture, the people and farmers are positive actors integrating its settlement with food supply. The difference between a permaculture ecosystem and a natural ecosystem should only be that the permaculture ecosystem is intended to feed humans. (Morrison, 1988).

Permaculture as a design system is not really new. This practice re-arranges things in the natural systems in a different way, so that is works productively in the social system, generating more than what is consumed from nature. Therefore, through permaculture people can obtain food energy, shelter, and other material and non-material needs, like *joy* and *sharing* needs, in sustainable ways, "working with, rather than against nature" (Morrison, 1988: 3)

3. Growing food in Communities

Growing food has become mainly a job for subsidized farmers and developing populations. These populations suffer, however, when they live in a rigid system at the bottom of the socio-economic ladder, and they aim to change their status. Farming realities are cheap, complicated, and not at all a good deal from an economic perspective. Rapid development and changes in population requirements suggest the need for different ways to grow food. In addition, the models of farming today are unsustainable and require new strategies that are integrated with modern living skills.

Strategies like "water storage", "land forming", "establishing a windbreak", "selective farm reforestation", change of market and processes, or new crop techniques may enable new sustainable economies around farming that create better futures for communities that rely on it (Morrison, 1988: 20). Such strategies promote greater soil productivity by connecting ecological services to living services directly (without an electric or drainage grid). Such innovations represent more time to spend in other activities, other than farming, which in developing context enable to grow their means and power to develop individually and culturally in their societies.

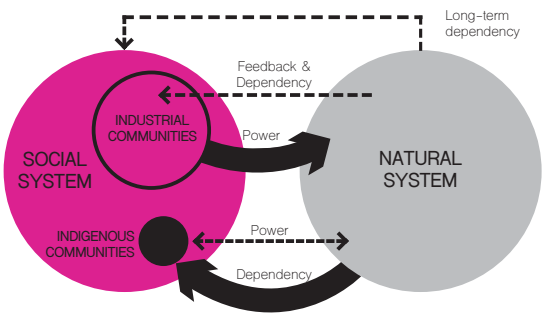
Caobafarms.
Organic Production in Guatemala
(Author)

2.5 Summary and Reflection

In this chapter, it has been discussed how the world of which our survival depends has limited resources and how humanity should adapt to them to continue its evolution. While material development prevails, the economic forces will continue threatening the natural systems. Moreover, as development spreads, also harmful western values are brought to people in need, conditioning their lives to individuality and materialism. As material values grow their immaterial knowledge and values are lost. Worryingly, such immaterial knowledge may be used to find new forms to face today's environmental problems.

Hence, when thinking of ecological problems, feedbacks of the degraded parts of the system are clearly not reaching those with decision-making power. Societies that have a closer relationship with nature; more specifically various indigenous communities receive greater feedback from their environment. They are constantly suffering the consequences and challenges that a damaged natural system presents. These communities are characterized by lagging behind in development, and therefore have less power of voice and control in the natural system. On the other hand, industrialized communities have succeeded in developing technologies to control nature and to be independent from it. Therefore, vulnerable communities in the social system remain disconnected from the natural system, and the feedbacks they receive from the environment remain unnoticed to those who have the power in decisions.

As values are dominant to one type of development, feedback loops are broken in power disparity (See figure). But, in order to sustain and improve our social systems, we need to pay more attention to the "feedbacks" of nature hidden in social problems, to diminish disparities between "control" and "feedback" and identify the systemic drivers that need to be adjusted in the social system.



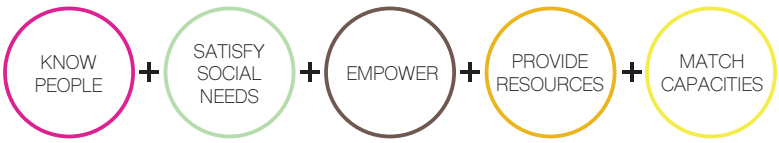
BROKEN FFEEDBACK AND POWER STRUCTURES. Those communities that receive greater feedback, due to its direct dependency, from the natural system have less power of operation within the social system, and those with great impact and power have less feedback. The feedback loop is lost from those in power of the social system to understand the natural system, but in fact the whole social system depends, at the long run, of the natural system.
(Author)

Such a panorama advises us to understand better how the interconnections could be addressed. In both contexts, it is necessary to identify the interconnected system's characteristics to provide interventions for rearranging it, within their own limits, for resiliency.

A clear insight is that multicultural actions and worldviews, though, mainly exist in communities and populations who live in poverty. In order to sustain the diversity of species and systems in the world, we, humans, need to sustain a diverse range of values and traditions. And when identifying how to give them value, designers could be useful; as such profession has long give value to the human-made resources.

Sustainable development, where everyone's needs are satisfied, can only be achieved through wellbeing goals. It requires using economic systems to satisfy human needs without disrupting the environmental system. But human needs are iterative, based on culture and knowledge that proposes ways of satisfaction. Therefore, culture's role is vital to sustainable development when defining new satisfiers, which keep development within the environmental systems resiliency.

The satisfaction of social needs becomes sustainable when people have a set of given conditions to act upon their own needs. Designers, who have an established knowledge to shape their environment, can help them understand how to act upon their needs. The disruption of today's patterns of development can be achieved through empowerment, participation, collaboration, diversity, communication, and flexible structures that allow experimentation. These strategies allow creativity and people to act upon the contradictions of their context, to develop by themselves more sustainable solutions that foster wellbeing in the community. Over these strategies, design should explore its specific capacities and establish a design that provide high-quality dynamics to empower people to solve their needs with the resources available, and exchange the capacities and knowledge they posses with those who have similar problems.



COLLABORATIVE SCHEME FOR SOCIAL ACTION

COLLABORATION SCHEME FOR SOCIAL ACTION. For social action towards sustainable devleopment, social needs must be satisfied by knowing the culture, empowering people, and collaborating to match capacities and solutions. (Author)

Another key factor when addressing pressing ecological and social problems is cultural behavior. As part of the system, it becomes an issue for many people to change their personal behavior with conventional pressures in the social system.

The change should be smooth. Changing from bureaucratic, top-down, and rigid structures from society to collaborative, flexible, and participative schemes will take time. Thus, individual and collective motivation should start from everyday values, meanings, and rewards. Things that we value today as humans – such as sharing a gift with others or enjoying a cup of coffee, or travelling to a new place, could remain if new meanings and processes are applied. But, things should not stay the same in emerging communities, where people aim to someday achieve to own a car and send their kids to school or build a house, or in developing communities that people will soon start aiming for this. I think no one should advise them on what to buy or not to buy, when they achieve economic means they should enjoy a similar freedom of industrialized communities. What should change is their means to learn and judge and act: first, about the consequences of becoming an industrialized community, and second, about the risk of losing today's values. Primarily, the new processes of collaboration, participation, and empowerment are hopefully ways to make the quiet voices of the less empowered individuals be heard by those who take decisions.

Design uses its skills and methods to change what exists into a desired reality, exploring the problems and proposing new alternatives. When dealing with complex situations, the solutions of design require greater knowledge about the problem. Thus, they can use their abilities of synthesis and visualization to share their ideas with other stakeholders and find better solutions together.

Design in many cases has operated alone with a design brief based on the needs of market. The solutions have led to mainstream engagement with material wealth, values, and senseless desire. When dealing directly with social issues, it is difficult for a designer to present solutions for sustainable development if the designer is working alone. Therefore, it is important that design uses collaboration tools with different organizational models to assist them providing better solutions to the users.

Different models of social assistance like governments, non-government organizations, and international aid have been ineffective in creating inclusive and sustainable solutions to address communities who live in poverty and suffer the consequences of today's worse environmental problems. These forms of assistance have also required design practices. But, with their particular structural problems, have restricted the capacity of designers to temporal or biased solutions.

To re-invent the design profession for sustainability, it is necessary to increase designers' capabilities through other active citizens. In this form, design skills can explore creativity more integrative proposals to transform people's lives. In developing such creativity, design can propose new environments that enable empowerment, collaboration, and participation. For instance, supporting new economically sustainable models with similar objectives (sustainability and human wellbeing) could offer better ways of solving human needs. Social enterprises, for instance, are emerging actors developing a business model to address human and environmental needs. By understanding how they operate, or what their challenges and means are, designers could find opportunities to assist them in developing better processes for sustainability.

SOCIAL ENTERPRISES FOR SUSTAINABILITY

3

The social enterprises movement is slowly becoming better known and established within the world's social action structure. As this type of social action is just settling its bases, what is meant by social enterprises, social ventures, social businesses may vary in concepts and terms according to how they are created, their processes, and what their values and social aims are. Nevertheless, social enterprises, despite the different names they can adopt, have specific characteristics and ideologies, as well as a support system that defines their work and the manner in which they approach ecological and social development. To understand better what social enterprises are and their form of work, this chapter examines the contexts and the processes in which social enterprises are evolving. In addition, to find the contribution of social enterprises for sustainability: I will present an overview of existing social enterprise typologies, ideologies and strategies used to address social needs through businesses. Following, I will analyze and discuss how the different models can act towards its environment evaluating the social, ecological, and economical components presented in the varied types of social enterprises.

The compilation of social enterprises is based on information released on websites and social media, where the main activities of this movement are shared. At the same time, the analysis is based on the concepts of sustainability of the theoretical framework in the context of developing countries. Overall, this collection of knowledge provides valuable insights on the needs and opportunities to improve social enterprises impact, for the overall wellbeing of society.

3.1 What are social enterprises?

Social enterprises are being explored as innovative models to solve the challenges of today's complex world (Nicholls, 2006). In developing contexts with profound challenges, social enterprises are evolving rapidly led by several activist entrepreneurs. They see a need and opportunity where governmental models have been insufficient or distrusted, and create social initiatives aiming the development of services to remote and vulnerable communities (Yunus, 2011). Development aid and government studies are also being reoriented toward these approaches that seek to solve problems of social inequality, global warming, poverty, waste management, soil restoration, etc. in the world (Nicholls, 2006). But, how do social enterprises contribute to sustainable development? It is important to understand how social enterprises contribute in order to engage in collaborations aimed at tackling these problems.

Social enterprises have been creating services to improve social economy in the field of development, evolving where many populations cannot access market exchange, or more recently, where innovative forms to improve wellbeing need to be introduced (Kostilainen & Pättiniemi, 2013). For its social and economical mixed-nature, and if no legal framework supports them, social enterprises can be considered as part of the 'third sector' and, at the same time, part of the active economy (Yunus, 2011).

The term 'social enterprise' is used in many western countries to refer to an entrepreneurship business creating jobs while maintaining a countries' welfare system (e.g. Kostilainen & Pättiniemi, 2013). In developing countries the most commonly used conceptions of "social enterprise" refers to an enterprise that addresses poverty by services or integral solution, using the financial model of business to support a specific social mission (Yunus, 2011).

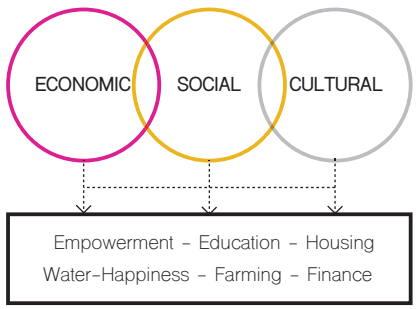
This concept can also be known by other terms, such as "social business" (ibid, 2011), "social economy entitles", "business for the poor", etc. Different terms may describe variations in the processes of the enterprise. Therefore a general framework is presented, thinking of a social enterprise as a for-profit business that reinvest their capital and profit into social services aiming for social, mental, and environmental wellbeing (Yunus, 2011), but also as entities that find value on social organization to open new market-opportunities (Nicholls, 2006).

Each type of social enterprise has its own economic and social profile. Such profiles may stand upon the wide range of social enterprises doing 'businesses for good' and 'good for business'. 'Business for good' would be driven by the objectives of doing 'good' for society, seeing a social opportunity in business (e.g. Honeymoon, 2014), while a 'good for business' sees a business and good-looking opportunity when approaching social needs (e.g. Benett et al, 2010). Between these two opposite views, a wide numerous of interpretations and practices exist, mixing business and social investment to different degrees within the same concept.

SOCIAL ENTERPRISES IN THE WORLD

Somehow, natural to today's interconnected world, the spread of knowledge and ideas of social enterprises has been fast. Literature on economics has focused on promoting such social patterns, showing the benefits of doing "business while doing good" -aiming for structured businesses to transform their activities into social good (e.g. Benett et al, 2010). At the same time, economic education is also transforming to reinforce their entrepreneurship support, perhaps not exclusively for social good, but being of interest to many students to have a business or improve existing services and quality of life. In addition to literature, there has been a boom of new social enterprises formations, which gain popularity through startup events or venture programs: Startup Weekend, Startup Accelerators, Social Innovation Funds; and through the rapid sharing networks of ideas: for instance, TED Conferences, Facebook, Twitter, Youtube, etc.

In a general scheme, the value of social entrepreneurship relies on the blended form of managing economic, social, and cultural components (Emerson, 2003). Despite the context, social entrepreneurs increase these values at different levels; not only for their company, but also for the community they help or belong to.



VALUE OF SOCIAL ENTREPRENEURSHIP IN BLENDING. Visualization of Emerson Concept of how social enterpreneurs blend economic, social, and cultural components to provide solutions.
(Author's Illustration)
(Emerson, 2003)

In the context of development, the main arguments around the creation of social enterprises have been: the redistribution of economic resources to address poverty, to invest profit with a purpose, to empower people through economic means, and to make it viable to provide services for people living in harsh or remote conditions (Yunus, 2011; Yunus Centre, consulted on February 2015). Through these arguments, social enterprises are seen as a hope to address poverty, to enable equality across the world, and to address the needs by systemic changing, enabling social value to rise by leveraging ideas and power (Nicholls, 2006: 70). It is mainly seen as a model that can fast supply to immediate needs, while bringing knowledge and resources to people so that they can contribute to change their own environment, to address the roots of their vulnerability and the socio-environmental problems they face: poverty, inequality, natural disasters, water contamination, food scarcity, pollution, etc.

...social enterprises are seen as a hope to address poverty, to enable equality across the world, and to address the needs by systemic changing, enabling social value to rise by leveraging ideas and power.

(Nicholls, 2006)

Social enterprises contribute to development through: innovation, effectiveness, business strategy, and scope (e.g. Agora Partnerships, consulted in 2015). More importantly, their perspective on looking at problems as opportunities is what makes them so interesting to different actors. And, if applied correctly, their work could be a significant determinant for change for a person oppressed by poverty. But, is their rapid development good or bad in a long-term? And how can it ensure environmental sustainability?

CONCERNS ON SOCIAL ENTERPRISES

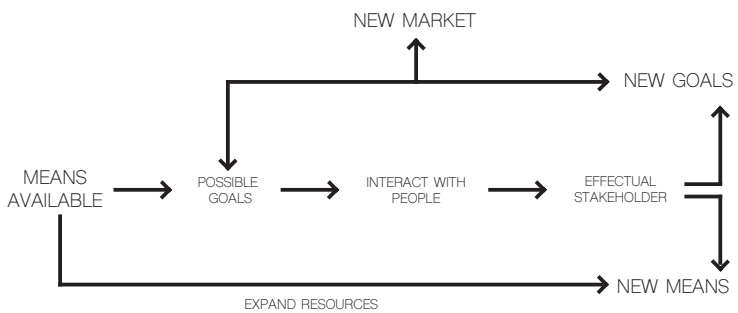
One issue of social enterprises is that their work is mainly approached from western worldview perspective of development. As it has happened with many development-aid initiatives, a more industrialized, economic sufficient group may underestimate, and distort, the set of value systems that may exist in a town, community, or among a specific ethnic group (see chapter 2). These differences in values may underestimate the power of people and, by endeavoring to be quick and effective, have in consequence insufficient solutions for the specific community and context. The main problem could appear when scaling to deliver mainstream solutions for water, agriculture, or energy (which are common needs, but may vary on how they are adopted by people and its environment from one location to the other). Therefore, many of these social enterprises evolving as positive actors, could have negative long-term social and ecological effects.

The context of a country, city, or community is the major set of means and constraints that social enterprises have for their own development. And, solutions should be adapted to it, instead of bringing ready-made solutions to it. Many social enterprises have tackled context challenges through community integration and through collaborations. To do so, could require from the entrepreneur to learn over time, from trial and reflection.

TRANSFORMATION OVER TIME

Social enterprises can transform its service and solutions by including the community. This process requires a great capacity of reflection from the entrepreneur and certain flexibility of the enterprise to allow such transition. Saras Sarasvathy (2001) has explored the way in which entrepreneurs transform their surroundings in order to be successful. Through effectuation, the ability to use the means around and continually transform them, entrepreneurs are able to learn and change, to tackle the needs of improvement and achieve their goals (Sarasvathy, 2001). Though Sarasvathy's study focuses on market entrepreneurs, a similar process can be identified when social entrepreneurs deal with issues. The more one person knows and achieves, the greater the means they can use to provide solutions (Sarasvathy, 2001).

In order to satisfy social needs, social enterprises should place social needs as the main goal. And to be successful on reaching sustainability, social enterprises should also have social needs as a priority; but, at the same time, understand the systematic patterns that could affect, in the long-term, social needs, transforming their own activities until a good blend of social, ecological, and economical mix is sufficient. As social context - means and constraints of a society- are better transformed whenever the understanding is holistic. Therefore, as a first step into holistic understanding, social enterprises should actively propose participation of the community and collaborate with other experts. Participation and collaboration between different social actors and the community will enable to have an understanding of the issues and the possibility to act over them to change them.



EFFECTUATION DIAGRAM. This process was evidenced by Saras Sarasvathy to show how entrepreneurs use their means and environment to be successful and able to achieve more. (Sarasvathy, 2008)

3.2 Sustainable Social Enterprises

For sustainability, social enterprises should be aware that every context has particular conditions. From local, municipal, national, or international scales of social enterprises what is important is the process, how they address the needs of people, and how they define their goals. To define a solution there should be an intensive research and ideation process before any mainstream implementation to avoid negative impact on a community. However, it is almost impossible to find the solution at the first trial and, as Max-Neef (1991) highlights, the needs change over time; thus, entrepreneurs should build prototypes and reflect continuously, trying to find an accurate solution with the available resources. And, in this manner adapt the solutions to the evolution of the community, to better satisfy the population's needs.

Sustainable social enterprises are in constant transformation, trying to find the right product, service, and business model for the transformation of communities into autonomous entities. Flexible structures allow social enterprises to generate sustainable solutions more effectively than structural governments; their financial models allow them to constantly increase their impact. Their characteristics and goals enable them to potentially approach needs sustainably through different ways. Such characteristics show potential to provide positive processes. But, in the long-run, such processes will depend on the social enterprise's engagement to its social goals, their means or resources, and their particular interests.

This section outlines my analysis over the work of social enterprises. For this thesis, I tried to find and analyze how the service of social enterprises is good or bad for sustainability and development from my own design view and perspective. To provide the sustainability criteria that I am going to present, it took a long study of the existing social enterprises in the world, but mainly over the social enterprises arising in the context of Guatemala. The study started with numerous revisions of how social enterprises operate and how their efforts contribute to the communities' systematic needs. Following that, my insights were strengthened by an interview to an expert in Guatemala forming an acceleration platform. The findings concerning the Guatemalan context are later presented on chapter 4. Furthermore, the theoretical framework presented in chapter 2 contributed to define the analysis on how social enterprises contribute to sustainable development, defining what are their approaches to social needs, and how different typologies can have positive and negative effects on development:.

3.2.1 Approaches of Social Enterprises

Due to their difficulties in being part of today's market-system, communities have benefited from the tools provided by social enterprises, which allow them to develop further the ideas, skills, and knowledge they need to sustain their enterprise and livelihood. The motivated entrepreneurs develop social enterprise models based on empirical, or professional, business knowledge and adapt their solutions to each situation by developing variations to each particular social objective. Such approaches are discussed in detail, through examples and particular benefits or challenges. Each social enterprise has used, to different extents, some of these approaches; nevertheless some place more effort on one or another, depending on their interests, goals and resources.

1. Social Enterprises are Close – Get to know the people

As their goal is to help people, social enterprises approach them and get to know them. To develop their business or service for people, social enterprises need to visit the community regularly, work with people, take them as part of the activities, and maybe even live in them. When social enterprises approach communities with an idea or personal interest, they eventually find a common goal to work together. As their relationships grow, they learn more about their needs, and provide better solutions. Some social enterprises are better than others at getting to know their people, as it requires a lot of time and effort. When it comes to creating an impact and improving the quality of life for people, it is necessary to know the people as deeply as possible.

2. Social Enterprises Trust People

Social enterprises trust in the power of people, even though their skills may be invaluable to other enterprises. Social enterprises may place their trust in the dreams or ideas of people, trust their capacity, trust their future, trust their processes, trust their knowledge, or trust their needs and desires. For instance, in the experience of Muhammed Yunus, the creator of microfinance, he found great results when delivering trust. When Yunus lent the first $27 to 43 women in Bangladesh, he just trusted people would pay it back and they paid accurately, while being able to solve their problems on their own.

This action led Yunus to the practical understanding of the power of trust that evolves through their capacity to help themselves (Sarasvathy, 2008: 213). Yunus (2004) describes the process of emergence from poverty with this phrase:

> "They [people emerging from poverty] are Bonsai people, they are like small trees when you take them out to the light... they grow taller, they grow stronger, they grow prettier" (Yunus, Quoted by Sarasvathy, 2008).

It is when "you are trusted" by others when "you are able to grow" individually, to learn and to develop yourself, in personal and societal means. Many people in poverty that are now being trusted with different aid initiatives - be it through a social enterprise, a grant, or by any governmental program - have shown the same capacity as those who have better opportunities, and with the right attitude they develop their capacities even further. Trust is equivalent to empowerment, it is the capacity to include others in what we are dreaming, developing, and achieving. If one gives trust, one gives the power to dream.

3. Social Enterprises Empower

Our societal structure has been defined by achievements inside the complex systems (education structures, ethnic differences, achievement values, etc.) we have created: "how much do you know?" or "how much do you have?". Change is difficult, because it is deeply embedded in our mental models. In addition, many assumptions and contradictory societal schemes threat social development, by producing a deep gap of social inequality. The results on unequal opportunities determine that the life of some is valued higher than that of others, that some people have the right to have access to everything, while others do not, and set the distribution of resources accordingly. Societal differences should exist in the diversity of values, but not in unequal opportunities.

As inequality is so embedded in many mental models of developing countries, empowerment becomes a tool to address mindset change. Empowerment can be the result of personal motivation caused by external or environmental conditions. Empowerment enables a community to tackle its needs by way of their own means. By empowerment, social enterprise address indirectly the evolution of a development with cultural diversity, where societal values are preserved, while providing cultural development and more equal opportunities for personal and cultural development.

4. Social Enterprises Teach & Pay (Better Use of Resources)

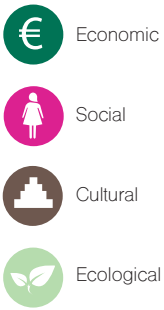
Social Enterprises are transferring skills and paying back quickly for the effort of learning. Education and labor solutions in these enterprises are much more immediate than they are in regular complex structures. They provide tools, like knowledge and the means to sell, for people to activate their own means to today societal requirements, and provide then with a direct channel of distribution to use this acquired knowledge.

5. Social enterprises Reflect and Develop

If they care about solving a problem, social enterprises come back to reflect and try to provide new solutions. As many ventures and as Saras Sarasvathy identifies, social enterprises show how to use effectuation in their processes (Sarasvathy, 2008). Effectuation allows social enterprises to utilize the different means around them to develop their solutions. As humans and activists, they have the ability to design innovative ways to address needs and even to evaluate their solution and re-arrange it accordingly to cover new needs. (Fuad-Luke, 2009). It is this characteristic which allows social enterprises to be more effective in solving social needs. They can reflect and develop, because the flexibility of their institution, individual and non-bureaucratic, allows them to develop their own experiments into attempts to solve the issues. This capacity, therefore, also depends on the size, commitments, and bureaucracy created in time by the specific social enterprise.

3.2.2 Sustainability in Social Enterprise Typologies

SUSTAINABILITY IMPLICATIONS ARE ANALYZED THROUGH 4 COMPONENTS:



Sustainability in social enterprises should be evaluated on the basis of their models of addressing needs. Social enterprises have showed different ways to empower and bring opportunities to people. Based on existing enterprises or service organizations, I identified several examples of how these organizations are dealing with social needs. The different social enterprises that exist today, and its working typologies empower people in various ways according to their context and conditions. I have clustered the most common typologies of social enterprise in four different types: Skill-building enterprise, Service-providing enterprise, Ownership-building enterprise, and Conditions-developing enterprise. Each one provides different benefit for sustainability, which are discussed further.

SKILL-BUILDING SOCIAL ENTERPRISE

Those who see potential in people as producers

They utilize human potential, educate them, provide them with resources, and provide means for communities' development. Social enterprises propose a design and show them a technique to develop it further.

CONTRIBUTION: They ensure sales and market-distribution.

RESOURCES USED: Human Potential, Education, Delivery of tools.

IMPROVEMENT: Develop means to develop skills and make a living.

SUSTAINABILITY IMPLICATIONS

It could break the circle of poverty, by developing new means for people to live.

It empowers people by providing and knowledge new skills.

It risks suppressing or changing cultural beliefs and practices.

It vary according to the product or skills brought to people; if the product is efficient, design to transcend, design to reuse, and has low emissions it would improve ecological conditions. .

They match human needs and means available, and provide a service to cover the needs. They provide the design and product or service development and then sell it to the community.

CONTRIBUTION: They provide products with focus on availability and poverty needs. Many products are designed for developed and wealthy markets, long been seen as a profitable market strategy by many companies, but there is a need to provide good design to those who have a similar need and are willing to pay at least a small utility for products and services that improve their live standards.

RESOURCES USED: Designers, Production, Market Study, Cooperation, User-centered Research, and Co-creation.

IMPROVEMENT: People are able to satisfy their needs and use better their time to improve their own conditions.

SUSTAINABILITY IMPLICATIONS

It ensures the sustainability of the for-profit company. Single product could have fewer margins, but there is a great market to tackle, which could enable large number of sales, and therefore, a greater gain.

It helps people grow pride in developing in their own means. The products should be carefully selected to cover their needs.

There is a need to study cultural practices carefully, and design for the needs and desires of people. Designers should be careful and culturally aware to identify what needs to be changed and what needs to be preserved from the community's culture.

It varies according to the product or service, and the disruption of the existing resources through its use.

OWNERSHIP-BUILDING SOCIAL ENTERPRISE

Those who see potential in people as owners or partners

They provide ownership to the community overall. This could be an enterprise that lend money, borrows tools, and provides funding, knowledge, consultancy, or so on. They see communities or individuals as valuable partners that can create value in the long-run for the company or society.

CONTRIBUTION: They do not have a product to sell, but their tools; they provide all sorts of tools: economic, ecological or social means. People in their communities are those who better understand their own needs, they can therefore provide better or practical solutions to the communities' needs, without renovating wholly the culture of the place, but clearly addressing the need.

RESOURCES USED: Communication, Exchange of Goods, Market Understanding, and Relationships

IMPROVEMENT: People are able to develop their own ideas further, experiment by themselves, and tackle immediate existing needs from their community.

SUSTAINABILITY IMPLICATIONS

It provides an active investment and return system, and it develops the community economy with simple agents.

Social sustainability depends on the type of inclusion that the services and projects developed by the community could contain.

This model is culturally very sustainable, because people discover their own capacities and development alone. Though, if cultures are already influenced by unsustainable values, it could provide the same problems of development.

It could bring problems depending on the services developed. They should have in mind the ecological aspects of services in order to be ecologically sustainable.

Providing conditions for individual to act upon their own needs. These type of social enterprise provide indirect services for people, like a service or product that benefits the government to provide some public benefit. It aims to create the environment to evolve, because they see them as part of the same environment. It may be focused on providing a good natural environment, like natural resources that contribute to life development.

CONTRIBUTION: They provide conditions for development. They ensure the means are available to educate, to design, to produce, to learn, etc.

RESOURCES USED: Involvement, System Thinking, Design, and Environmental Studies.

IMPROVEMENT: People improve their quality of life with what they have around, if they feel motivated, they are inspired, they learn without being oppressed, they feel they could contribute, or if they engage.

SUSTAINABILITY IMPLICATIONS

Depending on the solution could increase economic means by activating human resources. It has to be careful to ensure a continual input of resources and to define the terms of economic means shares.

This model develops empowerment and motivation. The environment and the conditions are vital to ensure that social means are taken into account. Developing ways to meet people to understand and collaborate with others could develop ecosystems that ensure social sustainability.

This model develops through the own cultural desires of a community. If the creation of positive means is ensured, it allows the culture to choose freely ways to develop positively and through innovation.

If the objective is the environment, ecology should be the most important condition. It requires the conditions for development to encounter the needs of our environment and to provide social understanding on the relationship with the natural system.

The different typologies of social enterprises help developing communities create trust, as they empower them to develop their own means at different levels. Adequate empowerment from social enterprises will allow communities, and its individuals, to solve their own problems and break cycles that have restricted themselves from growing. From the revised approaches, not all social enterprises utilize these approaches or get the same results. It is also a process. A set of learning experiences, acquired through time and experience, helps them to achieve this whole approach and to develop a success story. Through each specific model, social enterprises also have their own problems; identifying 'what to provide people with' to help them satisfy their needs, to get feedback, to keep their market growing, to increase their impact, to keep focused, and even improve their service delivery.

Though social enterprises' work has the potential of creating a positive impact, it would be very difficult to achieve a holistic effect by working alone, tackling all of the needs of a community at the same time. To develop their solutions for communities, social enterprises have to serve their own enterprises' needs through collaboration. They can trust and be trusted, teach and be taught, sell and buy, understand and be part of the free market in order to develop their own businesses ideas. Their impact is influenced by their ecosystem, and therefore there is a need to improve their ecosystem dynamics to increase the capacity of their service to address social needs.

Social enterprises also need to develop and learn skills that drive them to dialogue and exchange values among other social actors. In the following case study the reader shall explore further how a social enterprise evolves- and what kind of challenges arise, through their activities and goals to address social needs.

SOCIAL ENTERPRISES IN GUATEMALA

4

This chapter presents social enterprises and its development in the context of Guatemala. A compilation of the Guatemalan social enterprises and support programs provides an overview of the existing support network for individual social enterprises.

(Human Development Reports, United Nations Development Programme)

GUATEMALA

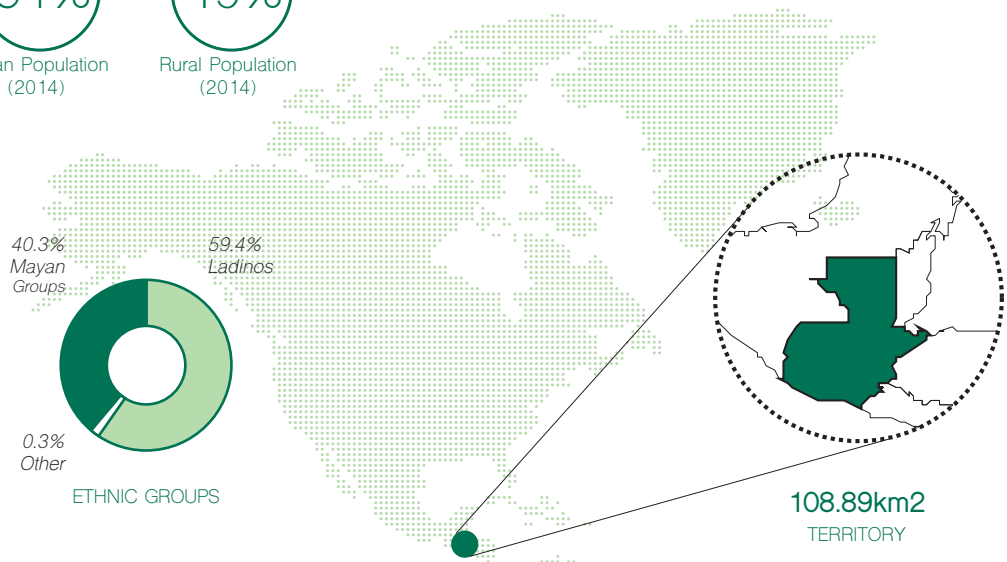
POPULATION: 15,86 million
Women 51%
Men 49%
Life Expectancy at birth: 72.1 years

11,258 kt
Country's CO2 Emissions (2011)

14.83
Impact of natural disasters (deaths per million of people)

51%
Urban Population (2014)

49%
Rural Population (2014)



EDUCATION

Mean years of schooling:	5.6
Adult literacy rate:	75.9%
Population with Secondary Education:	22.6%

104%
Primary Enrollment

65%
Secondary Enrollment

19%
Tertiary Enrollment

3.11%
Fresh water withdrawals % of total renewable water resources

33.60%
Forest Area (% of total land)

33.51%
Fossil fuel % Primary energy supply

9.1%
Population living on degraded land

0.78
Emissions of CO2 Tonnes per capita

2.11%
Natural Resource depletion % of GNI

INEQUALITY

Inequality-adjusted (HDI)	0.422
Inequality in life expectancy	17.4 %
Inequality in education	36.1 %
Inequality in income (%)	42.5 %

EMPLOYMENT

Youth unemployment (15-24)	7.5 %
Unemployment rate (15+)	2.9 %
Child Labour (5-14)	25.8 %

4.1 Social Enterprises in Guatemala as a Poverty Response

In the last years, social enterprises in Guatemala have been developed with empirical approaches from different professions. Guatemala's private and academic initiatives are building an entrepreneurial ecosystem to provide multiple solutions to help satisfy the multiple needs of a developing population. They have approached communities with different resources, aims and products.

SOCIAL ENTERPRISES IN GUATEMALA

Social enterprises in Guatemala focus on poverty alleviation. A major part of social enterprises in the country are working towards sparking economic activity in communities, developing products that could create a profit for the families. However, it is not possible to generalize as the needs are so many; and many social enterprises have identified a different opportunity, and find new ways to support the communities. One of the drivers and mindset when helping oppressed societies is the ideology that claims that "the cycle can be broken if at least one of the variables is addressed" (Wakami, consulted on March 2015). Mainly social enterprises in Guatemala focus on the business concerns of people, but there is a huge variety of ways to achieve business and social innovation. To show how social enterprises are developing different services, aims and strategies, I provide a selection of six social enterprises that have been operating and developing rapidly in Guatemala in the last years.

WAKAMI – COMMUNITIES OF THE EARTH

www.kiejdelosbosques.com

Bracelets and Jewelry Production

2004

MAIN AIM

Connect artisans to markets to live up to their potential. Transform cycles of poverty into cycles of prosperity.

ACTIVITY

Generating income for artisans (90% female). Connects market and artisans, creating an opportunity and self-empowerment. Sell in Guatemalan and international market.

SUMMARY

Wakami has evolved from a "fashionable" bracelet enterprise that brought market to the people to an integral social development enterprise that is now collaborating with other social services to bring more quality services to the communities it serves.

Source: Wakami

ECOFILTRO

www.ecofiltro.com

Water Filters made with Clay

1990– NGO
2009- Enterprise

MAIN AIM

Serve Guatemala's population with good quality drinking water. Reduce water bottles use.

ACTIVITY

Sell water filters, developed with a natural clay technology, for rural and urban markets.

SUMMARY

Ecofiltro uses a crossed-subsidized system in which they sell the filters to urban market at a for-profit price and pay part of the rural market products with the profits. Today is also collaborating with other social enterprises to develop integral solutions for communities.

Source: Ecofiltro

CASSA

www.cassa.com.gt

Self-sufficient Housing

2013

MAIN AIM

To provide sustainable and dignified housing solutions (Integrated systems of energy, food, water, and sanitation) to rural markets.

ACTIVITY

Design and build personalized self-sustainable housing with Off-grid Clean Water, Clean Energy and Waste Management.

SUMMARY

Cassa has developed a pilot self-sustainable house that aims to bring interest in the rural market to develop more housing to tackle integrally the housing and environmental problems. It is an starting social enterprise, looking for not an accurate business model to finance their goals.

Source: Cassa

KINGO / QUETSOL

www.kingoenergy.com

Affordable Electricity for Remote Locations

2010

MAIN AIM

To bring access to electricity to off-grid homes in rural poverty areas in the World (started in Guatemala)

ACTIVITY

It provides a prepaid solar energy service, it has incorporated two different models, a selling model, and financial services to meet the customer needs. Their market system, build the capacity of local entrepreneurs and uses existing market structures.

SUMMARY

It has powered 4250 homes (3-5 led bulbs + 5 hours of charge for appliances). Their local market approach is developed through the employment of community members, while the people can enjoy a pre-paid service of electricity and add "credit" anytime they need electricity.

Source: Kingo

ESTUFA DOÑA DORA

www.estufaddora.com

Efficient Wood Stoves

2011

MAIN AIM

It aims to reduce the risk of respiratory diseases, improve families finance efficiency and prevent deforestation in Guatemala.

ACTIVITY

It provides efficient wood stoves (wood stoves are used by 70% of Guatemalan families).

SUMMARY

In 2013 it sold 500 stoves. It has in-depth understanding of the need for stoves. They are selling in the rural markets and serving a growing population. This is a social enterprise is empowered by Alterna (decentralized social enterprises incubator).

Source: Estufa Doña Dora

BYOEARTH

www.byoearth.com

Worm Composting and Organic Farming

2007

MAIN AIM

They aim to reduce soil erosion and ensure food security and improve dietary diversity for rural and impoverished communities.

ACTIVITY

Byoearth provides assistance and empowers women to develop their own business cooperative to produce organic worm fertilizer and transform waste into a productive material. It ensures market distribution of worm fertilizer to 4 women business cooperatives.

SUMMARY

Byoearth provides technical assistance, market networks, and develop their services towards food security, teaching people the importance of soil and a way to take care of it with a natural technology. In addition, it provides services of sustainable community farming design to different NGOs and social enterprises.

Source: Author

Which among these social enterprises focus on developing products and including society as producers, as consumers, as partners, or as part of the environment?

From this collection, I identified that many (Ecofiltro, CASSA, Estufa Doña Dora, Quetsol) use the product-customer model to address community needs. In this product-customer model, it can be observed that the product is of great importance for the sustainability of the social enterprise service, so it requires the development of a very efficient and affordable product that serves the needs of many, without damaging the environment. What also varies is their service, which can be identified to be better through participative social practices, like those performed by kingo.

Some social enterprises are more efficient in approaching the communities' financial possibilities, while others still depend on external funds in order to sustain their activities and impact. Achieving financial sustainability in these different cases appear to be related to the different scales of the product. A more expensive product will require more investment from people, which in turn risks the development of the social enterprise.

I also identify that there are two social enterprises that provide a working scheme to empower communities through an income. One of these (Byoearth) proposes an environmentally friendly product, while the other social enterprise (Wakami) proposes a "fashionable" version of artisans products. Nevertheless, this product is not entirely environment-friendly, it promotes women's capabilities by focusing on their work, and successfully empowering them by providing good working conditions and wages. At the same time, Wakami ensures the sustainability of their action around traditional artisan crafts by developing what they call, "Wakami Villages" (Comunidades de la Tierra, consulted in 2015) and collaborating with other social actors to develop holistic projects within the women they hire.

EMPOWERMENT ANALYSIS OF SOCIAL ENTERPRISES IN GUATEMALA.
This analysis has been developed from dated activities of the mentioned social enterprises. The categories in this analysis are explained in detail in Chapter 3. Some of the social enterprises have develop multiple activities, which empower people differently, and therefore has a mixed typology. It has been perceived that these social enterprises adapt their services and activities in accordance to people needs. Thus, their focus and level of empowerment could improve in the future.
(Author)

GIVING ENTERPRISES

Different types of assistance have evolved from the concept of social enterprises. Perhaps, with the same ideal of covering social needs to address the great needs and social inequality, some enterprises are empowering communities and serving their needs without a business model. Generally, these are for-profit enterprises that give away products meant for healing social needs (and also call themselves social enterprises). As these giving enterprises have found a way to collect money to invest in social goods, they are also improving some aspect of community life; however, they do not provide long-term solutions for problems. Furthermore, they often represent an approach perpetuating the poverty cycle; that when ending their activities in the communities, the latter will lose the service. In short, they don't produce social transformation.

Social enterprises in Guatemala should not develop philanthropic assistance, but rely on a business model as a base to their assistance to vulnerable communities. A social enterprise does not donate; instead they engage people in selling, using, and investing in a collective, family or individual goal allowing them to serve their own needs and to discover new ways of using their knowledge for values in the current economic exchange system.

4.2 Ecosystem and Incubators

Social enterprises' network assist entrepreneurs to develop a business and find innovation to serve social needs. As the support for entrepreneurial efforts continuously grows greater guidance is needed to address social needs in their specific contexts. Specifically, social enterprises require support of active members of this network to build holistic approaches and processes for population inclusion to better understand the issues at hand. The compilation highlights visible opportunities of social enterprises to work towards sustainability.

There are two main developers and supporters of social enterprises in Guatemala. Heurestica UFM, which is not specialized in social enterprises but in entrepreneurship, and Alterna, an entrepreneurship program developed to follow the process of social enterprises from its inception through its first years, focusing on rural entrepreneurs.

The first one, the School of Business of University Francisco Marroquín has created "Heuristica UFM" a startup incubator, whose mission is to help develop ideas and business models conceived by college students of Guatemala City. Their main goal is to develop business innovation and social aspects start arising as a secondary focus. Despite there is some social innovation generated within these incubations, innovations to serve Guatemala's pressing needs will depend on the individual entrepreneurs and their sense and their knowledge and sensibility of the social problems.

"It was important for us to create Alterna outside of Guatemala City, closer to the need and the rural potential for social entrepreneurship.

(Daniel Buchbinder, 2015)

The second one, "Alterna", on the other hand, was born as an entrepreneurship program for rural areas. This program focuses on social entrepreneurship, but much of its support provided is business-oriented because there is greater need of these in such context. At the beginning of the year 2015 this program had cultivated 110 social entrepreneurs. With their incubations they have supported ideas on various fields, from organic agriculture to manufacturing and energy solutions. Overall, this accelerator aims to decentralize entrepreneurship from Guatemala City, and reach rural areas from the surroundings of Quetzaltenango, Guatemala that present greater need and opportunities for business and social development.

At the same time, the government has started to give more importance to entrepreneurship and is supporting the social enterprises movement with "Guatemala Emprende", a recent government support system for entrepreneurs. Its main goal is to provide venture capital and funding for new ventures. At the same time, the government is developing an entrepreneurial political framework with the support of the main universities and practitioners of the business sector (Government of Guatemala, 2015). In this context, strong changes are being developed in the entrepreneurial context.

The above mentioned private and public initiatives highlight a growing trend of social enterprises and demonstrate the importance of including sustainability and design analysis skills in the development of their contributions. The urban-to-rural approaches to problems need to have critical considerations of social inclusion to improve the communities' conditions without disrupting their cultures or environments. Innovations from new entrepreneurs require guidance for collaboration, inclusion, empowerment, and cultural awareness, and the existence of a strong network of support is relevant to achieve such ecosystem.

Different approaches for the development of social enterprise's ecosystems have attracted a variety of entrepreneurs, but could also carry sustainability risks. Strong mental models embedded in Guatemalan culture and international examples still link development to GDP and pure income opportunities. The risk rests in enterprises developed with a stronger emphasis on profit rather than on social and ecological dimensions and, in consequence, creates the type of development that buttresses a consumerist society and obstructs sustainability.

To address these social and ecological dimensions without forgetting a constant financial support, I believe that design and its attributes are key to envision a variety of proposals for the future. Therefore, I will explore how design can be applied in the activities and strategies of Byoearth when working with communities to address the soil and farming problematic in Guatemala.

CASE STUDY: BYOEARTH & FARMING PROBLEMATIC IN GUATEMALA

5

Contribution of a social enterprise to solve social needs around farming and soil restoration.

The case study explores how the social enterprise- Byoearth- is tackling the farming problematic in Guatemala, in contrast to existing social institutions dealing with it. The different means, processes, and results of running government programs, Non-governmental Organizations, international aid, and social enterprises are analyzed through design and sustainability criteria. In addition, the case study of Byoearth has been chosen to expose the experiences of an on-going case dealing with socio-economic problems in Guatemala. This single case study helps provide details of the business model and services that social enterprises provide, and helps analyze its challenges and opportunities to address development sustainably. How is the social enterprise briefing the problem? What is its approach to communities? What and how is Byoearth delivering their service? What could be the next steps of Byoearth in order to improve their services?

(World Bank Indicators)

FARMING

Agriculture Land:

4,429,000 km2
(Faostat)

Cereal Production:
1,808,779 tons (2013)

Banana Coffee Cacao Sugar Cotton

MAIN CROPS

Fertilizer Consumption:
159 kgs/hec of arable land (2012)

32% Employment
is in Agriculture

42%
Food Exports
(2014)

14%
Food Imports
(2014)

43.4%
Prevailance of Chronic Malnutrition
(ENSMI 2008-9)

145,358
Families in
food insecurity

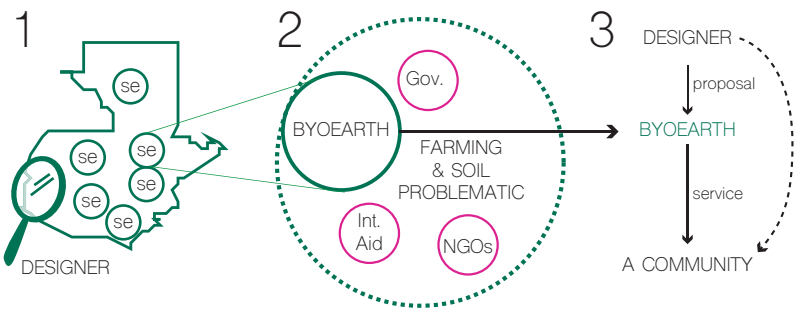
11,258 kt
CO2 Emissions
of Guatemala (2011)

$145 million
Expenses on Chemical Fertilizers
(MIT Atlas)

5.1 Methodology

To explore the Case Study of Byoearth, I developed an in-depth study of the social enterprise and the services they provide to the communities in different locations of Guatemala.

To understand how this social enterprise provides better solutions for communities, the case study compiles the historic and social constraints of the problem. Following, the case includes a brief compilation of the ways in which the government, NGOs, and International Aid have tried to solve it. Historical research, news, and institutional websites were used to draw an accurate context of the problem and the initiatives that are coping with it.



FOCUS STEPS. To evaluate the social enterprise service it was important to have three levels of focus. First, on the general national level. Second, in the context of social enterprises. And third, in the context of a community served by Byoearth's service.

The culture of Byoearth, its strategies, means, and processes are studied deeply over their time of growth. This is achieved by interviews with the social enterprise's manager and workers, revision of their management material, and observation of their work. The material revised includes reports to partners, news and internship reports, power point presentations to clients, and teaching modules for communities. In addition, the impact of this social enterprise and the qualitative aspects of their service were explored deeply studying their relation to one community –Sumpango-.

To explore Byoearth's service in communities, an ethnographic research was conducted during the month of November 2014 in Guatemala. This detailed study allows a better understanding of the contextual problems and issues that social enterprises deal with in order to deliver their services, as well as the understanding of how these communities are receiving the service.

Observation allows an accurate picture of the working conditions and the difficulties of their specific context. At the same time, interviews and in-depth conversations with the cooperative members and Byoearth workers allow a better understanding of the processes and mechanisms involved in the past, present, and future of the services that encourage or inhibit the communities development.

During my encounter with the social enterprise and cooperative, my studies in sustainability and the knowledge on the social context of Guatemala drove the questions of the ethnographic research:

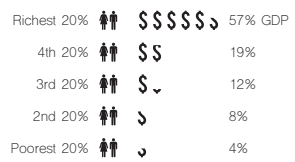
How is Byoearth actually helping women?
How does the cooperative benefit the community of Sumpango?
How are the cooperative members using their knowledge to develop further the cooperative?
What are the everyday and long-term constraints of Byoearth?
What is difficult to know and do for the women?
What is difficult to know and do for Byoearth?
What are the culture constraints in this collaboration?
How is Byoearth approaching several needs of the cooperative?
What needs are not yet addressed?
Who else could collaborate in the process of serving this cooperative or communities needs?

The insights provided are used to develop service analysis tools (storyboard, service system maps, etc.) and therefore to give an in-depth sustainability analysis of the system. These insights are compared to the strategy defined by Byoearth's management team, and used to develop a Service-Product Strategy, the Design Concepts, and steps to implement such suggestions. The results are presented in a graphical Scenario Storyboard Strip, which provides a visualization of an ideal future. These service design tools present a visual format that describes how the activities may evolve through the application of new design concepts, while it also grant the possibility to identify the gaps of the service for the future.

5.2 The problematic of Farming and Poverty in Guatemala and Existing Solutions

Guatemala's farming landscape extends across its history, geographical location, society, labor force and ethnicity. In colonial times, most productive lands were allocated to Spanish colonizers, while the local indigenous population- the Mayan people- where pushed into the highlands. Many years later, the government of 1952 and 1956 launched an agrarian reform, redistributing some of the land to the workers of big landlords. At this time, several Mayan families became small landholders living off their own land. (Nations Encyclopedia, consulted in March 2015). In the 1970s, during the Civil War, indigenous people were relocated to the less productive farmlands and steep hillsides. Since the 1980s, many have been relocated by the State in order for it to build hydroelectric projects and operate mines. These historic events have resulted in today's indigenous poverty reality. Currently, poverty is concentrated geographically in the rural highlands, in the smallholder farmers' labor, and ethnically it is mainly distributed among rural indigenous communities. (Rural Poverty Portal, consulted in March 2015).

Poverty by Inequality



Young Population

0–14 : 40 %
15–64 : 55 %
65 + : 5 %

Economic Inequality and Social Fragmentation.
(Data, World Bank Indictors, 2011)

Guatemala is a nation rich in resources and diversity, but its unequal land distribution has helped create a deeply unequal society. According to the World Bank, Guatemala has one of the most unequal income distributions and highest levels of poverty in the hemisphere. In 2011, the wealthiest 10% consume over 42% of the total national income, while the poorest 10% account for only 1% (World Bank Indicators, consulted in 2015). These results are also reflected in its agriculture.

One of the main economic activities of Guatemala is farming, and yet the country has the highest rate of malnutrition in Latin America (43% in 2008-2009), while more than 145,000 families suffer food insecurity (FAO, 2010). Agriculture represents 13.5% of the total GDP of Guatemala (US$ 58.73 billion), 75% of export activities, and employs 38% of the labor force (Nations Encyclopedia, 2015) (CIA, consulted in 2015). At the same time, the cost of malnutrition in human development rises up to 11.4% of the annual GDP (WFP, 2015).

Economic and agriculture development represent an oppressive structure and the root cause for the degradation of Guatemala's social and environmental landscape. Today, poor cultural awareness, unequal opportunities, inefficient governance, the imposition of values, and poor social inclusion are relevant factors of this undesirable context. Overall, the lack of cultural awareness among the indigenous Mayan population has been a driver of both the social and ecological disparities that Guatemala shows today.

LOST OF INDIGENOUS VALUES FOR ECONOMIC DEVELOPMENT

Not so long ago, Mayan farmer communities used a more natural method to grow their crops: "I remember how my dad and grandfather gathered all the waste of the house and tree leaves from the garden, they mixed them and left it there to decompose, adding also the ashes of the wood we used to cook. Then, they used this mix to fertilize the corn, the beans or any other crop". (Vidal, cooperative member of Sumpango, 2014). Despite climate difficulties, smallholder farmers developed their own crops and started to live from the market regime. Their traditional farming method used natural ways to restore the nutrients back to the soil, using their own waste to fertilize. Sadly, this traditional process was set-aside in the name of development.

"I remember how my dad and grandfather gathered all the waste of the house and tree leaves from the garden, they mixed them and left it there to decompose, adding also the ashes of the wood we used to cook. Then, they used this mix to fertilize the corn, the beans or any other crop."

(Vidal, cooperative member of Sumpango, 2014)

The desire for economical development led to the introduction of synthetic fertilizers to Guatemala in the mid-twentieth century. This form of development has been quietly devastating land and human productivity. Carey (2009) identifies the effects of this event into the Mayan farmers situation:

> "While some Maya hailed synthetic fertilizers' immediate effectiveness as a relief from famines and migrant labor, other lamented the long-term deterioration of their public health, soil quality, and economic autonomy. Since the rising cost of agrochemicals compelled the Mayan to return to plantation labor in the 1970s, synthetic fertilizers simply shifted, rather than alleviated, Mayan dependency on the cash economy" (Carey, 2009: 283).

Mayan populations living far on highlands, and perhaps with no monetary means to buy the expensive fertilizer stayed behind from development; but those with opportunity and means to invest developed their yields into big chivalries. Therefore, big farmers became bigger, and as they specialized their production into mono-crops the environment started degrading through contamination and resource exhaustion.

(Berdagué & Fuentebella (IFAD), 2011; Owen, 2005)

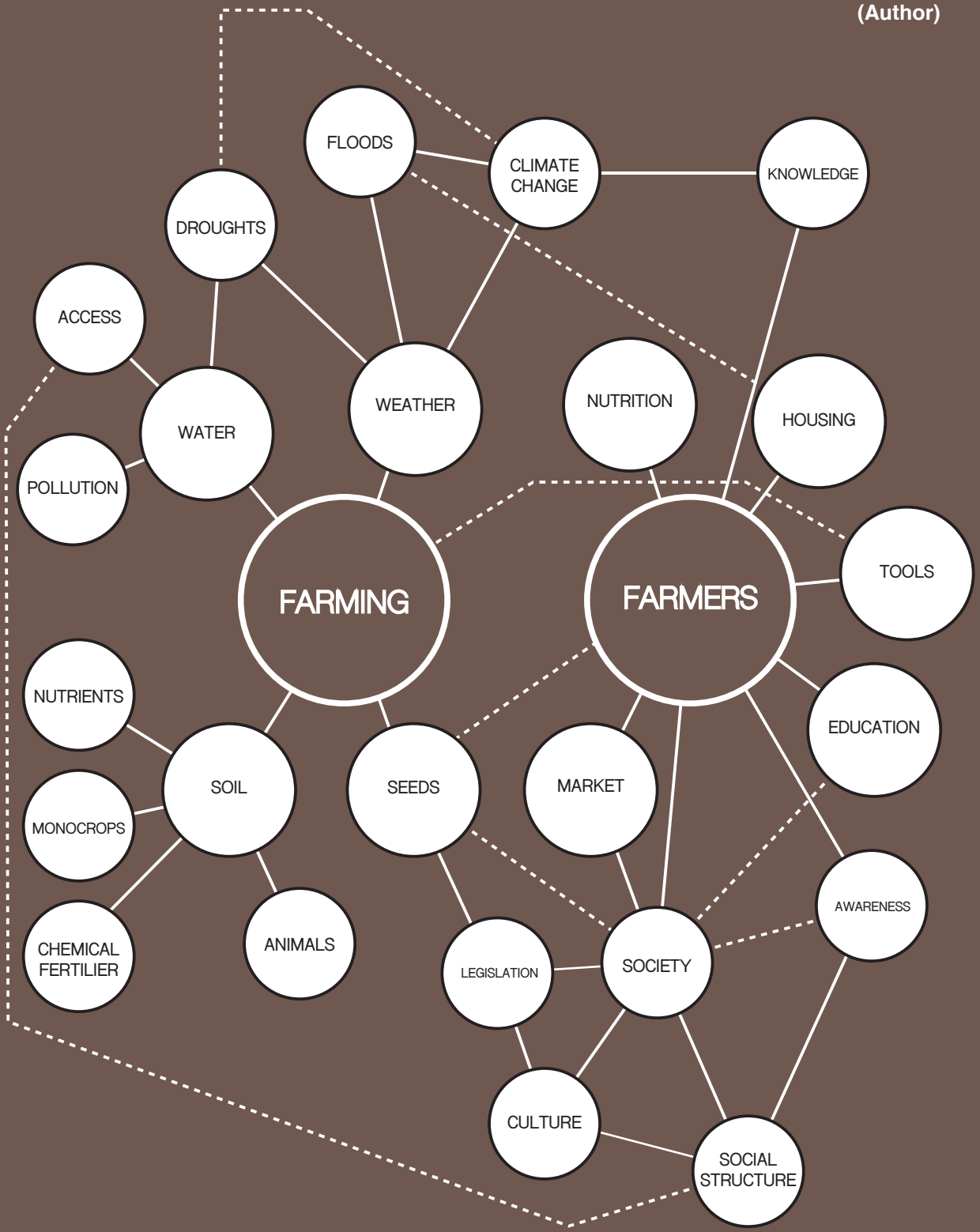
With this development the big farmers of Guatemala developed into good and efficient farmers playing well in the international market; exporting coffee, corn, beans, sugarcane, cardamom, bananas, barnyard animals, and fruits (CIA, 2015). But, small-scale farmers did not developed equally to other farming companies. Smallholders, dependent on the natural environment, turn to rely on synthetic fertilizers due to general soil degradation caused by big yields, as a means to compete in the local market. Such dependency represent an economic concern, a high cost of investing to purchase the fertilizers and harsh labor conditions to grow crops.

SMALLHOLDERS AS KEY ACTORS FOR SUSTAINABLE DEVELOPMENT

The complexity should be addressed by identifying the people who can make a change to farming. Industrial farmers are important in Guatemala's farming future, but as their needs are fulfilled with the current systems, they look for changes to what affect them directly, for instance in their profit. On the other hand, smallholders suffer the consequences of today's system and are key actors to impulse changes in the system. They are also important in number; 76% of the farms are from smallholders (2 hectare definition) and control about 13% of the 3.7 million hectares of agricultural area in Guatemala (Berdagué & Fuentebella, 2011; FAO, 2010). Therefore, for their need of innovation to change their reality, smallholders represent a key group of individuals that could contribute into the transition of farming.

Investments to support smallholders should be developed also thinking about integral solutions. If investments were focused on the economic development it would bring more environmental problems. But if there is a social and environmental focus, it could evolve into a more environmental friendly farming, with economic gains in the long-term. Social and environmental needs should be addressed through today's means of value exchange: money. Therefore, it is important to develop creative and integral solutions, based on how social, ecological, and economic needs interact. The next diagram is an analysis and visualization of the interlinked needs of smallholders.

INTERLINKED ISSUES IN FARMING FOR SUBSISTENCE FARMERS (Author)



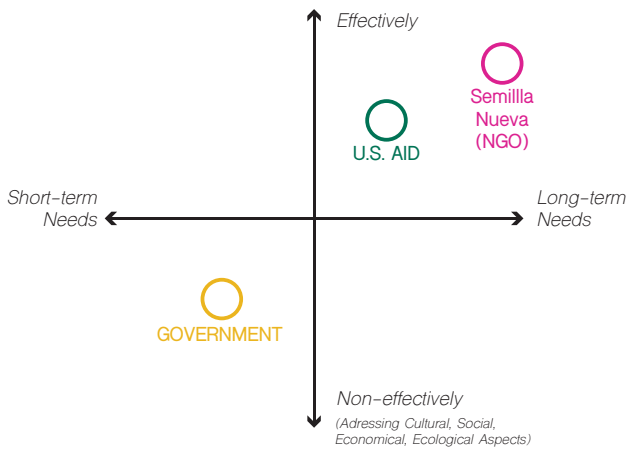
EXISTING SOLUTIONS TO THE FARMING COMPLEXITY

In the farming landscape and other matters, development is economically accelerated in Guatemala, but not socially. The growth of its economy is developing forward, while social and environmental developments are slow and threat sustainability. Despite, societal awareness about the complexity of the problems in Guatemala, we keep dealing with today's problems with unreasonable and unsustainable processes. A feeling of dependency — waiting for help from the developed — is not only developed among poor populations, but in the general professional and institutions in power.

The main actors developing solutions for farmers and their families or communities have been government, non-governmental organizations (NGOs), and international aid organizations. It can be observed that some of their solutions poorly take into account basic social and ecological concerns.

The history of farming explained in the last section presents clear problems that today set the common goals of the social action initiatives. Despite they have similar goals, this institutions have different understanding of the frame of the problem, different understanding of the procedures needed to tackle them, and different resources to do so. Each of them also has its own personal or institutional goals to survive in this world as such. To exemplify these differences the next pages develop a profile of each of the coping entities and their approaches to the farming problematic.

For the compilation of these initiatives, I used varied sources of the web: news, interviews, institutional websites, and existing analysis available. For the matter of this book, I summarized and analysed the findings to define how each social initiative is serving development. These findings serve to highlight problems dealt by social actors to give a background of the challenges and opportunities of social enterprises in the Guatemalan context.



AXIS MAP OF SOCIAL ACTORS ADDRESSING FARMING PROBLEMATIC IN GUATEMALA. To compare the different initiatives I have analyzed its effectiveness according to its objectives, and the satisfaction of long-term needs by evaluating its strategies. (Author)

1. GOVERNMENT: STRENGTHENING THE RURAL ECONOMY?

The Ministry of Agriculture in Guatemala has developed a strategy to cope with the farming problem: "Programa de Agricultura Familiar para el Fortalecimiento de la Economía Campesina" (Program of family agriculture to strengthen the Rural Economy) (MAGA, 2012). The plan was launched in 2012 and was supposed to be completed at the end 2015. The program includes policies to address hunger, nutrition, and agriculture risks in a long-term. For instance, 'Pacto Hambre Cero', as a part of this program has resulted in the different policies: the National Policy for Integral Rural Development, the National Policy for Food and Nutrition Security 2005, the National Policy of Environment Preservation and Natural Resources Improvement, and National and Regional Agriculture and Livestock Policies. In all these policies, the principles show potential to integrally address the existing social and ecological problems through empowerment, technical assistance, market generation, and collaborations.

Links to more info:

web.maga.gob.gt
(http://goo.gl/Keqiml)

www.sesan.gob.gt
(http://goo.gl/1egsbq)

en.centralamericadata.com
(http://goo.gl/5rg60d)

www.guatemala.gob.gt
(http://goo.gl/q8fvwi)

The strategic plan developed by the planning entity of the government, overall, seems to be an appropriate start promoting social change in the farming sphere. Nevertheless, its strategic government efforts is undermined by some of its practical activities. This is exemplified in one program that aims to promote social development by delivering "free fertilizers" to smallholder farmers in towns. Such government program provides a 100lbs sac of synthetic fertilizer at the cost of 10,40 Guatemalan Quetzals (Approximately €1,00), which is usually sold for over 250,00 Quetzals (€25,00) (IARNA & FAUSAC, 2013). For this program the MAGA (Ministry of Agriculture and Livestock of Guatemala) will use from 10% and up to 45% of its annual budget (ibid, 2013), being limited to act on benefit of few farmers. In addition, as synthetic fertilizer has long-term negative consequences in the productivity of the soil (Akinyemi, 2007; Carey, 2009), they condition farmers to buy more fertilizer. And, while they are not able to pay — or access to credit — they cannot buy fertilizer, and whenever needed to grow their crops, they are forced to survive in a worse situation (IARNA & FAUSAC, 2013).

Unfortunately, this political tool promotes farmers' dependency on government and circumscribes their development to this relationship, intensifying the prevalence of a poverty cycle among farmers. In addition, such programs are suspected to exist meant for government officials to further their popularity during the upcoming electoral period. But, this example is just one of several that show how government structures in Guatemala prevail to be inefficient and bureaucratic, poorly reaching to satisfy social needs. While they count with a great amount of plans and resources, many of those resources are lost in time and twisted by political decisions that impede them from accurately meeting a successful implementation.

2. INTERNATIONAL AID: "FEED THE FUTURE" STRATEGY

Links to more info:

www.feedthefuture.gov
(http://goo.gl/xyxtXk)

The United States Aid International Agency in Guatemala (USAID) has developed an aid strategy to address agriculture challenges in Guatemala. Their strategy and goals outlines their view to the problem: "Food insecurity in Guatemala does not result from inadequate national or local food supplies, but is caused, instead, by the inability of the poor to access food due to inadequate incomes" (FTF, 2011). To tackle such problems, their main goal is to "increase high-value crops and coffee production to generate employment", and allow populations to earn a sufficient salary to feed themselves (ibid, 2011). In this proposal, USAID's process is its strength, as it gathers different actors to work together by defining funds that support small NGOs and collaboration. USAID's process uses straight measurements to make sure the work compiles with the aims agreed. They keep their work as a facilitator for smaller actors and implement effectively through these small actors to achieve their established goals.

Working as a facilitator for smaller actors allows an effective route of implementation in the development aid. But while this strategy touches upon local and social development, the main focus on technical assistance to improve the production and process of coffee and commercial products. This focus creates a social risk, encouraging the loss of traditional systems, as well as an environmental risk, increasing new monocrops in order to fulfill market demands- in this case, for example, the demands of the international coffee or high-value crop market. Furthermore, when applying this technical assistance and focus there could be aspects that will not be understood from the context from far, harming the power of people to act for their own aims and reach sustainable development.

3. NON-GOVERNMENTAL ORGANIZATION – SEMILLA NUEVA

"Semilla Nueva" or "New Seed" is a non-governmental international organization that "fosters environmental and social stewardship in rural farming communities of Guatemala" (Semilla Nueva, consulted on 2015a). They approach small farmers in the surrounding rural areas of Quetzaltenango, the second largest city in Guatemala, and offer the opportunity to learn innovative natural farming methods to fight soil erosion and increase crop yields on exhausted land.

Links to more info:

www.semillanueva.org
(http://goo.gl/9g1X8T)

weguatemala.org
(http://goo.gl/zNNygs)

Semilla Nueva works through a "farmer to farmer" collaborative methodology. Through this methodology they teach a group of farmers to use natural technologies, mixing seeds and crop yields, and support them to try out the farming methods and judge the results for themselves. Then, after these farmers see good results, the NGO supports them with the necessary material to teach the same technique to others in the community. The aid program of Semilla Nueva aims to help communities gain economic independence with the resources they already have. This organization also provides assistance, better nutrition, and cooking lessons for the family to learn to prepare the new crop products. (Semilla Nueva, consulted on 2015b)

The main issue for this NGO approach arise when, due to previous experiences, the community fears that they cannot continue learning and evolving if the NGO leaves town, which usually happens when NGOs are restructured or relocate their funding target (ibid, consulted on 2015b). Despite this concern, the program shows potential, as the work is encompassing and comprehensive, and also, flexible to adapt to future community's needs. If they stay long enough, until the community gathers enough knowledge and find ways to support its livelihood, the work of Semilla Nueva could drive to a true sustainable development.

5.3 Byoearth: a social enterprise addressing farming

Byoearth has approached the farming problematic as a social enterprise with a comprehensive, integral, service. It has approached farmer's communities of rural Guatemala to help them understand the importance of closing the gap in the resource cycles so that minerals are returned back to the soil. Byoearth has taught people how to restore the soil with organic fertilizer produced by the cultivation of worms. This process restores degraded soil, while it is a natural process, practical, and relatively cost-free. These factors have proved to be crucial for the empowerment of farmers who live from subsistence farming and to rural communities as a new form of income. As they learn more of the worm process the community members remember the traditional indigenous principles from their Mayan roots – based on harmony with nature. This form of approaching communities by Byoearth, intends to drive communities to restore soil with an economical return, while they renovate their values to preserve their environment.

As explained previously, a large number of Guatemalan populations are subsistence farmers and belong to Mayan ethnic groups. Their farming practices have developed into unsustainable practices, as many of them now use chemical products to match competitive market demands. Byoearth understands that in the past these populations "were really connected to the environment and the land", but now it is required to remind them of the importance of taking care of their environment (Witney, 2012), as their ancestral values and the pride of their culture were lost through the country's economic development and political conflicts.

In this section we will provide important details of the evolution of Byoearth, as an enterprise developing a solution to farming through empowerment, financial and physical support cooperative's business. Here I will describe Byoearth processes in relation to their particular means and knowledge, their strengths, and weaknesses. An ethnographic study provides insights of Byoearth's relationship with one of the communities, the Sumpango cooperative -which seems to have become an important learning experience for the company. The study highlights the socio-environmental components and their effects on women empowerment and development. These components have developed in several ways through different cooperatives, some becoming more successful than others, which will be explained in detail.

Byoearth has learned and reacted from their experience of working for soil restoration with vermicompost and communities. Based on what they have learned, they are building their strategy to better serve the needs of communities in the fields of food security and soil restoration. From the analysis of their service, structure, and culture we will determine the answer to these questions: How does Byoearth work with communities as a social enterprise? What services are they delivering to vulnerable communities and how are they doing it? What could be the next steps for Byoearth to take in order to improve their services?

5.3.1 Byoearth: Organic Growth

Byoearth was born as a venture business in Guatemala in 2005. Their first step was to create a site in which to breed and cultivate worms, learn and experiment with the related biotechnology and define the best practices to produce and use organic worm fertilizer. This was developed in a coffee farm, so the coffee pulp waste was used to feed the worms. The company started with low funds (US$10,000) and a single entrepreneur hiring some employees who took care of the worms in the field. With the experience gained and through open market channels, the company developed shares and grew in just a few years. The first sales were to NGOs who served subsistence farmers, and then to the urban dwellers market, where they sold fertilizer to households and medium-size organic farms. In this process it is important to highlight, this market evolution was organic, developing in relation to the network of Byoearth's founder.

Byoearth has recycled 1,245 metric tons of waste into fertilizer. And trained 3,280 Guatemalans in Vermicompost (Byoearth, 2014)

GOALS & VALUES

Byoearth's main objectives when delivering their services are to 'enhance sustainable agriculture productivity' and 'greater food security for the local community'. They measure their impact by 'waste reduction' (biodegradable waste collected instead of going to landfill or incineration) and 'people served' (number of people trained in vermicomposting) (Agora Partnerships, 2012). Through an analysis of Byoearth rural distribution systems development, Agora Partnerships (2012) consultants identified their potential to:

"Improve the quality of living standards

- Reduce diseases caused by environmental contamination.
- Promote care and awareness for the environment among communities.

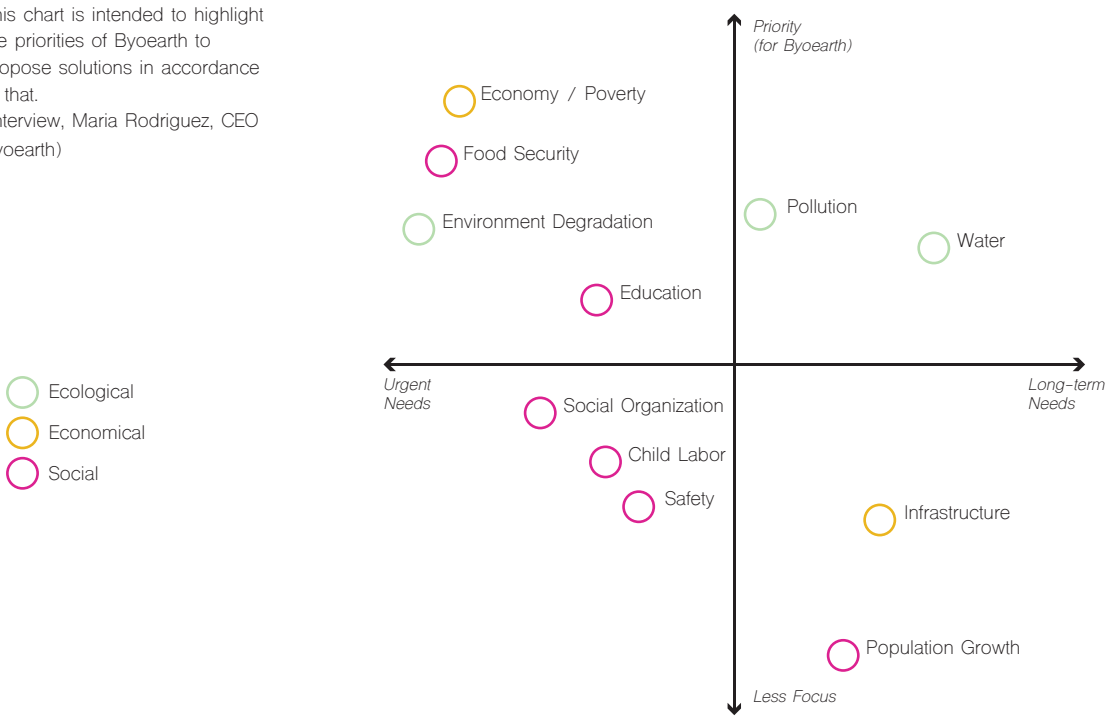
- Develop gains in income for subsistence farmers by carrying out vermicomposting processes or selling organic waste.
- Fortify small businesses.

Transfer knowledge and skills
- Transfer skills and knowledge for rural and destitute communities that deal with waste and farming in sustainable ways.
- Develop ecosystems and transfer skills and knowledge to different actors of the system: waste managers, farmers, fertilizer producers, and householders.

Target the environment
- Improve natural ecosystem through basic nutrients replenished in the soil, increasing biological diversity and ensuring permanence of micronutrients.
- They operate as a restorative social venture in fringe rural and urban areas of Guatemala.
- It preserves long-term productivity of the land, without compromising its nutrients (Clark et al, 1998). "

(Agora Partnerships, 2012)

BYOEARTH'S PRIORITIES.
This chart is intended to highlight the priorities of Byoearth to propose solutions in accordance to that.
(Interview, Maria Rodriguez, CEO Byoearth)



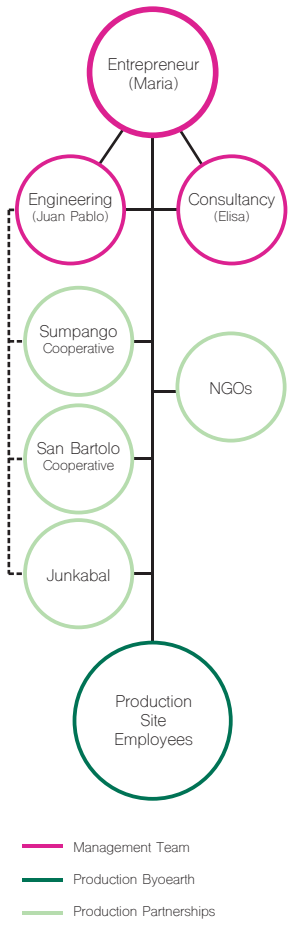
ECONOMIC MODEL & ECOSYSTEM MEANS

Byoearth is a social enterprise in ideology and goals, legally constituted as a formal enterprise in Guatemala and as a fiscal sponsorship in the U.S, which allows them to receive funding support and investment. This organization allows starting social activities without money constraints, while at the same time they build an open channel to circulate a product- the result of the social activities. The line of what is funded and what is part of revenue is mixed, as their aim is to reuse that money in the same social activities, after salaries and expenses are covered.

Byoearth as an enterprise is built up of two half-time workers and one external consultant. The founder-manager of the social enterprise has worked for Byoearth for over 9 years. The second member of the management team joined Byoearth in 2013, supporting the organization with professional knowledge in Environmental Engineering and addressing multiple management tasks as needed. They have received international strategic support from business and social enterprises' consultancies, such as Kelloggs Consultancy. In addition, they have also achieved specific goals through volunteering programs with students and passionate collaborators.

Byoearth is mostly supported by several organizations that highly trust the methods and results of the enterprise. Byoearth works in cooperation with a local foundation, Fundación Junkabal, and an International NGO, Technoserve, as partners to approach communities. Through these alliances they advertise Byoearth's products and educate farmers on the benefits of vermicompost. Through the partnership with Fundación Junkabal they have approached almost 200 women in the urban slums. Similarly, through Technoserve, they have approached three cooperatives, of an average of 20 women, and built the 'village-level' vermicompost production sites.

Moreover, Byoearth has repeatedly received technical support from Agora Partnerships, and funding from innovation investors like Halloran Philanthropies and Pomuna Impact. Therefore, every resource and funding should be invested coherently to support the companies' long-term goals and evolvement.



BYOEARTH's ENTERPRISE ORGANIZATION. Byoearth is a very descentralized entity. The managing team is mainly coordinating than subordinating actions, which allows free transformation of each of its parts. (Data: Ethnographic Research)

5.3.2 Byoearth: a social focus in Vermicompost

Byoearth, as a social enterprise, centres its activities on the production, awareness, and distribution of organic worm fertilizer, or vermicompost. Vermicompost, is a biotechnology that converts biodegradable waste into fertilizer through the digestive system of worms. They trust on the long-term profitability of this product because it restores the soil and allows the practice of sustainable farming without threatening its productivity. Because it is a new product in the Guatemalan market, Byoearth's activities include building the production and sales system. To do this, Byoearth provides guidance to rural communities and city dwellers on how to use vermicompost, as an efficient organic alternative for farmers to nourish their yields.

Byoearth's social service is supported by the enterprise component of the organization, which deals with the production and selling of vermicompost products. The enterprise owns a medium-size production site in a coffee farm in Quetzaltenango, located 160 kms away from Guatemala City. This production site has been working since Byoearth started, and this site's production has been key to maintain the flow of production and to develop a strong relationship with frequent customers. This bedrock has allowed Byoearth to develop other services around the social and environmental interests of Byoearth; consultancy services and cooperatives development, where they also have positive social impact.

Byoearth serves different small city-customers, organic farmers and subsistence farmers through collaborations with Non-governmental Organizations. The following chart describes how Byoearth sees each customer and the service, and products they provide to cover the different needs of the individuals and institutions they serve. As a social enterprise with fertilizer as its core activity, they try to open (1) awareness streams where their worms could transform more waste into high-nutrient fertilizer, (2) new market streams where their fertilizer could replace chemical fertilizer, (3) paths to new subsistence farmers who use their knowledge and skills for the development of their own market and farming benefits. Therefore, they operate on both product and service scales to improve the impact of their product. This strategy has encouraged the use of organic fertilizers in Guatemala, which was previously perceived as just heavy work or inefficient.

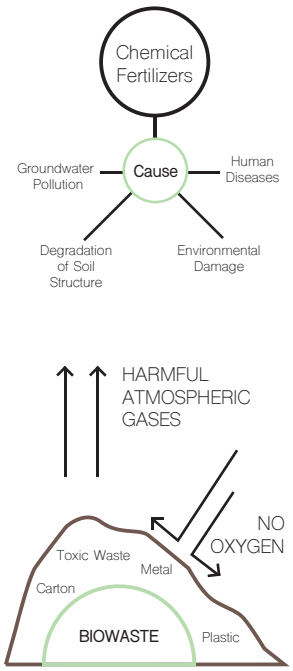
END USER/ BENEFICIARY	*DISTRIBUTION CHANNEL*	*PRODUCTS & SERVICES*
COMMERCIAL FARMERS Organic Enthusiasts	Direct Sales	Fertilizer, Worms, Seeds, Plants
INDIVIDUAL GARDENERS Organic Enthusiasts (for health or environmental reasons)	Direct Sales, Nurseries	Fertilizer, Worms, Seeds, Plants
SUBSISTENCE FARMERS (farming inputs and education to improve both household food security as well as income generation through improved crop or product yield for sale)	Nurseries, Direct Sales, through NGOs	Fertilizer, Worms, Seeds, Plants (inputs), Vermicomposting Systems, Training, and Education
VULNERABLE POPULATIONS women / children (education, health)	NGOs, Grants	Skills Transfer, Education, and Garden-Vermicomposting system set up

CUSTOMER & DISTRIBUTION BYOEARTH. This chart contains a brief introduction of the customers and beneficiary, the activities, and the products that are exchanges through Byoearth's services. (Kelloggs Consultancy, Byoearth Resources)

Byoearth develops its service in accordance to how they have framed the problem of farming in environmental and social aspects:

> "Chemical fertilizers are responsible for groundwater contamination, degradation of the physical structure of soil, environmental damage, and impact human health.' In the other hand, 'biodegradable waste typically ends up in landfills. With no oxygen reaching the waste, harmful atmospheric gases are generated. The concerns of farmers, gardeners, and landscapers about nutrient runoffs, soil health, and other long-term effects of conventional chemical fertilizers have increased demand for organic fertilizer."
>
> (Agora Partnerships, 2012)

With the spread of competition and globalization, the use of chemical fertilizer has grown to have efficient yields. Nevertheless, chemical fertilizer has been more efficient in devastating the soil in the fields than in improving its yields. With the years, their positive effects are lessened from farmers demand to rise. In 2012, US$145 million worth on chemical fertilizers and US$ 160 million worth on nitrogenous fertilizers were imported to Guatemala (World Bank Indicators, 2012). When balancing the benefits, this price has a higher cost whenever we include, more than the gains of productive lands, the human development loss and the lost of environmental services.



HARMFUL CHEMICAL FERTILIZERS. Chemical Fertilizers have terrible consequences for the environment and human health. In addition, bio-waste should be used more wisely in order to prevent harmful gases to appear in the atmosphere. (Illustration, Author) (OXFAM, Central American Data, TFI.org)

BYOEARTH'S PRODUCT: VERMICOMPOST

Vermicompost, the organic fertilizer product of vermicomposting, is a substitute for the costly chemical fertilizer, which protects long-term productivity and restores the damaged soil. Vermicomposting is the technique of adding earthworms to the composting process, which, in turn, improves the nitrogen, phosphorous, and potassium content of the remaining fertilizer. Without using chemical agents, worms digestive systems transform bio-waste and soil into a concentrated mix of nutrients soil, increasing the micronutrients for plant's development (Dickerson, 1999). Today's degradation of soil and continuous market demands require the introduction of multiple nutrients to restore the properties of the land. Vermicomposting provides a naturally rich formula that helps restore the soil and recover its properties gradually.

Byoearth's vermicompost fertilizer is a 100% organic nutritious product for plants growth. It improves the nutritional quality and fertility of soil, and therefore the quality of crops, ornamental plants, and gardens. "The quality of Byoearth's fertilizer depends on local conditions and on the type of organic residue fed to worms". Plant yields in 100% vermicompost soil grow up ten times better than those with only 10% vermicompost soil. (Agora Partnerships, 2012).

The worms used to produce this fertilizer is the "Coqueta Roja" (Common name in Guatemala):

THE "COQUETA ROJA" WORMS

CLASS:	Anélida Oligochaeta
FAMILY:	Lumbricidae
SPECIES:	Eisenia Foetida
LIFE CYCLE:	16 years
REPRODUCTION:	Hermaphrodite
FOOD:	Biodegradable waste (i.e fruit, vegetable leftovers)
SPECIAL CONDITIONS:	They live in humid, warm, and dark environments.
PRINCIPAL FUNCTION	Transform waste into organic fertilizer (Lombricompost or Vermicompost).

Agora Partnership has defined Byoearth has the following general benefits:

- "Byoearth raises Californian red worms (Eisenia foetida) that produce organic fertilizer by processing organic waste through their natural digestion process."
- Vermicompost is "a natural and local product, unlike chemical based fertilizers that depend on oil and degrade soil."
- Vermicompost improves soil structure and "helps alleviate land damaged by erosion".
- Byoearth's fertilizer increases the soil's resiliency to erosion and retains water better, enabling large pores in the soil for water to penetrate into the lower ground layers.
- Byoearth decreases soil dependency on chemical fertilizer, and therefore reduces farmers expenditures.

(Agora Partnerships, 2012)

EISENIA FOETIDA. One worm from Sumpango Site, Byoearth. (Author)

VERMICOMPOST (ORGANIC FERTILIZER)

Byoearth sells his high-quality worm fertilizer at an accessible price —5 times less than synthetic fertilizers —, in different packages:

Photo: Author

PRODUCT	*DESCRIPTION*
VERMICOMPOST PACKAGES Big Size 100 lbs. Medium Size 25 lbs. Small Size 10lbs & 5 lbs.	The price of the Big Size -100 lbs- package in urban areas will be of 70,00 Guatemalan Quetzals (approximately €7,00), and in rural areas it can go down to 50,00 Quetzals (approximately €5,00), according to each customer's deal.

OTHER BY-PRODUCTS

Byoearth has designed different by-products using the vermicompost benefits to serve their customers and serve their rural and urban customers with several practical products. With their by-product line they show high-creativity to inspire customers to use their organic solutions.

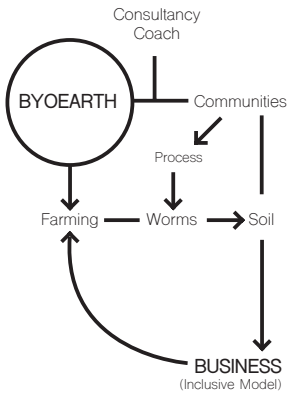
PRODUCT	*DESCRIPTION*
 SEED BOMBS - Garden Salad Bomb - Flower Bomb	"Round capsules with a mixture of elements which enhance the growth of a variety of seeds." (Byoearth, 2013). An innovative product for landscapes and gardens. They require little care and are very easy to grow. It is intended to bring vegetable life to the place where it is introduced.
 VERMICOMPOST KIT Micro-habitat box + 1 kg of worms + Manual of Use	It is a handy tool that will allow you to use your home waste to transform it into organic fertilizer. The kit includes a box with over 2,500 adult worms ready to be fed, and a manual on how to use it. It is practical and easy to use inside or outside of the house. With a careful care a household can produce from 8-10 lbs of fertilizer every month.
 WORM TEA Big Size: 25 tea bags Standard: 10 tea bags	As tea bags, these product has been designed, to be converted into foliar fertilizer (applied to the leaves) to be practical to use. It stimulates the plants so that it is improved at all levels: roots, stem and leaves (Byoearth, 2013).
 HOME GARDEN Herb Garden Fruit Gardens Flower Gardens	Flower pot of herbs, fruits and flowers cultivated with the organic fertilizer.

(www.byoearth.com)

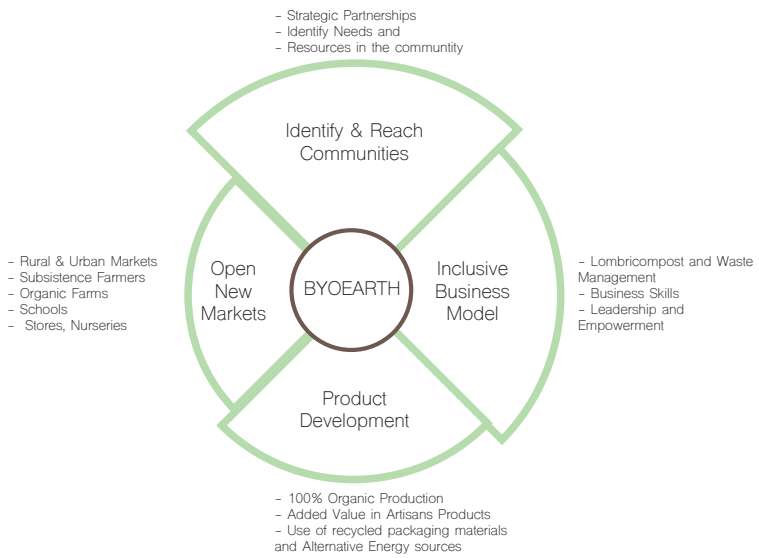
5.3.3 Byoearth: Delivering Services to people

BYOEARTH SERVICE: CONSULTANCY AND COOPERATIVES

Byoearth approaches communities in different ways. The central focus of Byoearth's work is to build skills for soil restoration, looking for ecological, economical and positive social development in rural communities. The models Byoearth uses to build skills in farming communities are divided in two: (1) skill-transfer consultancy collaborations and (2) building production cooperatives. The first model is a service granted through non-governmental institutions that require Byoearth's assistance in ensuring that community projects develop in sustainable ways, through food security programs or sustainable farming practices. The second model is a coaching service for women cooperatives to build self-sustainable businesses that will allow them to earn their own salary and improve their family's life. Both activities are important to the development of Byoearth. Nevertheless, the direct impact on their work with the cooperative is relevant to recognize what best contribute to women's development.



BYOEARTH SERVICE. This diagram show how Byoearth uses a business model to reach their social goals, while also providing consultancy to NGOs that wish to implement vermicompost in communities.
(Illustration, Author)



Byoearth: Impact Model
(From www.byoearth.com, consulted on February 2015)

Byoearth has also introduced their skill-transfer services to urban dwellers by way of diverse Organic Garden Workshops. These Organic Garden Workshops were aiming to increase awareness and sales among urban dwellers. These initiatives are not core to Byoearth's goals, but have been a way to outlast revenue and support their social investments of time and money.

BYOEARTH SOCIAL MODEL

*Technoserve is an international NGO that support the formation and development of enterprise for people in the developing world to build "competitive farms, businesses and industries" (http://www.technoserve.org). Byoearth started with an initial fund from Technoserve that allow them to start operations in 2005.

In 2011, Byoearth decided to increase their activities by collaborating with rural communities in order to empower them with the benefits of vermicomposting. To do so, Byoearth worked together with Technoserve, the NGO that helped to constitute the cooperatives, and developed worm compost as an activity for cooperatives of indigenous women in the rural areas of Guatemala. With this purpose in mind, the enterprise developed their own operational strategy on how to support communities.

To expand the social benefits of worm composting in the context of Guatemalan rural areas, Byoearth evolved as an organic fertilizer educator, providing technology, guidelines, support, and investments. Byoearth operates socially through what they call an 'inclusive business model' as a coordinator and market distribution entity. From these models they have obtained both positive and negative results which could be explored in the different cooperatives' experiences. Byoearth's 'inclusive business model' was first applied in two rural vermicomposting cooperatives -Sumpango & San Bartolo- and then in a third cooperative -Junkabal- in the city of Guatemala. As the cooperatives work through different means, Byoearth collaborates with them by providing the knowledge and experience needed in order to develop an environment-friendly product and a process that could bring an income and a sustainable livelihood to the members of the cooperative. The complexity of human interaction is always an important factor in the evolution of these cooperatives; for instance, they bring conflicting interests into collision, which sometimes become truly complex problems. Byoearth has coached two cooperatives for four-years and another one more recently. Through this time, Byoearth has encouraged the cooperatives to develop their own local ecosystem. The cooperatives in the different locations have evolved according to their environment and particular characteristics and through the interactions of its members.

Byoearth empowers women in the cooperative to develop their own sustainable business around vermicomposting. Byoearth provides them with the skills and basic means to produce fertilizer, and also provides them with a distribution system to sell it. They have chosen the process of vermicomposting for its capacity to close the gaps in ecological cycles. For instance, it could be combined with a specific crop, with animal breeding, and with a waste treatment project.

The practice of composting is easy to learn, but requires certain conditions to be developed into a quality product. Potentially, it is a hybrid of "everyday" and "industrial" process. In the everyday scale it could be accomplished as a household process -in small-scale to cover family needs (garden, subsistence

farming plot, permaculture, etc.). At this practical level, the practices could vary from using the available resources to develop the compost. For instance, a box of plastic or wood could be used, and the worms could be fed with the household's bio-waste –and only with few guidelines- it is possible to develop a high-quality fertilizer. At an industrial scale, it could be developed by small and medium businesses to produce fertilizer to satisfy industrial needs (big farming industries, nurseries, schools gardens, city gardens, etc.). In this industrial production of vermicompost it is important to pay close attention to the different variables needed: soil, water, a humid temperature, bio-waste, and a routine mix. In this bigger scale, the processes are still adapted to the location and waste available. These variables have been developed in Byoearth's cooperative depending upon their context.

When it comes to farming and market competition, the notion of productivity has become an important constraint. Byoearth innovates by using vermicompost as 'biomimicry' (Interview: Rodriguez, 2015), by transforming worms natural processes and using its designs and product to solve human problems.

With vermicomposting, Byoearth has introduced a sustainable technique that acts systemically closing the gap between food waste and soil erosion, to produce organic products for farming. In order to imitate this natural cycle, it is also Byoearth's aim to contribute to a 'circular economy' where women can gain profit from reusing the waste of vegetables and fruits produced in the localities. But, more importantly, it establishes the possibility for farmers to gain back their independence from a vicious cycle, while responding again to their traditional values and knowledge over agriculture.

Countless possibilities of waste-food cycles could be developed around the communities needs and skills, combining the production of organic fruits, vegetables, or even animal breeding. The cooperative of Sumpango, for instance, has combined it with herb production and beehives, which are experiments empowered by Byoearth and the cooperative to open future markets. At the same time, the cooperative of San Bartolo has been successfully linking the fertilizer production along with rabbit breeding and develop their own local selling point. With the experience of launching these two cooperatives, Byoearth has matured a valuable understanding and practical solutions in the articulation of vermicompost and communities' development, that should be explored further to define how they can be utilized to improve rural communities in different contexts.

5.3.4 Experiences of Byoearth: Partnering with Cooperatives

It is relevant to explore Byoearth relationship with the different cooperatives and their coaching service in order to understand how they are contributing with their service to sustainable development. Byoearth's work has supported these cooperatives through their growth, helping them to build their production sites through their guidance. Part of this work includes finding capital investment funds to develop the cooperatives' production sites. Byoearth also supports the cooperative development by providing them with market channels. To support the women's livelihood, Byoearth pays the cooperative production at an average of 80 percent of its sales cost, while Byoearth gets 20 percent to support the costs of distribution and its own activities. Thus, in order to help and broaden their social impact, Byoearth is urged to develop new distribution systems, until the cooperative find its own way into the local market.

The collaboration of Byoearth and the cooperatives developed organically. They began collaborating in a close interaction between Byoearth and the cooperatives' leaders. As mentioned before, the cooperatives were legally constituted by "Technoserve", a NGO which organized them into this type of organization so that they could work on their own communal development. Byoearth was not in charged of their organization; rather, it limited itself to working at the practical level by involving all the members of the cooperative in vermicomposting activities. Throughout the cooperatives' progression, Byoearth organized a series of meetings and workshops for cooperative members with these goals in mind, and included the following elements of practical knowledge: management, marketing, sales and organizational knowledge.

Currently, Byoearth spends most of its working time in activities related to helping develop knowledge and skills, quality control, and negotiations. The rate of time spent with a cooperative varies according to the priority and to the support that each specific cooperative may require. Despite the introduction of these topics, the main focus of Byoearth's skills-development endeavours was on vermicomposting. Today, it is clear that these are important skills that Byoearth brought to the cooperatives.

Moreover, other skills have evolved according to particular social dynamics inside each group. Among the three cooperatives that evolved from Byoearth work, there are two cases that, while using similar approaches, have had divergent results. By the time this study took place, one had become almost independent from Byoearth, while the other is highly dependent. Byoearth's goals include the self-sustainability of these cooperatives; therefore, the two cases could illustrate important insights of the potential and drawbacks in Byoearth service.

Cooperative 1: The Independent Cooperative Approach to SAN BARTOLO Cooperative

San Bartolo cooperative started its activities in 2011. Byoearth accompanied the process and highlights, in interviews and reports (Byoearth, 2013a), that San Bartolo is a young active organization that learned quickly and developed their ecosystem around vermicompost easily.

In the beginning of 2014, San Bartolo Cooperative had developed an integral system of production. In their system, they collected food leftovers to feed rabbits, and then used rabbit's defecates to feed worms, and obtained organic fertilizer from worms in fewer time spans. Today, this system allows them to raise income from rabbit sales, as well as to sell organic fertilizers in their communities and through Byoearth's distribution chain. This cooperative has built a consistent network that allows them to have food sources and be ready to sell their products. Overall, San Bartolo cooperative runs its production plant efficiently.

Their progress has flowed smoothly due to their effective social organization and they have become almost independent from Byoearth. Their administration is based on organized leadership formed by a president, vice-president and three committees — Administrative, Vigilance, and Education —. Women workers are organized with set work schedules, regular meetings with agendas and protocols, and they also have a process for decision making and voting. (Byeoarth, 2013a).

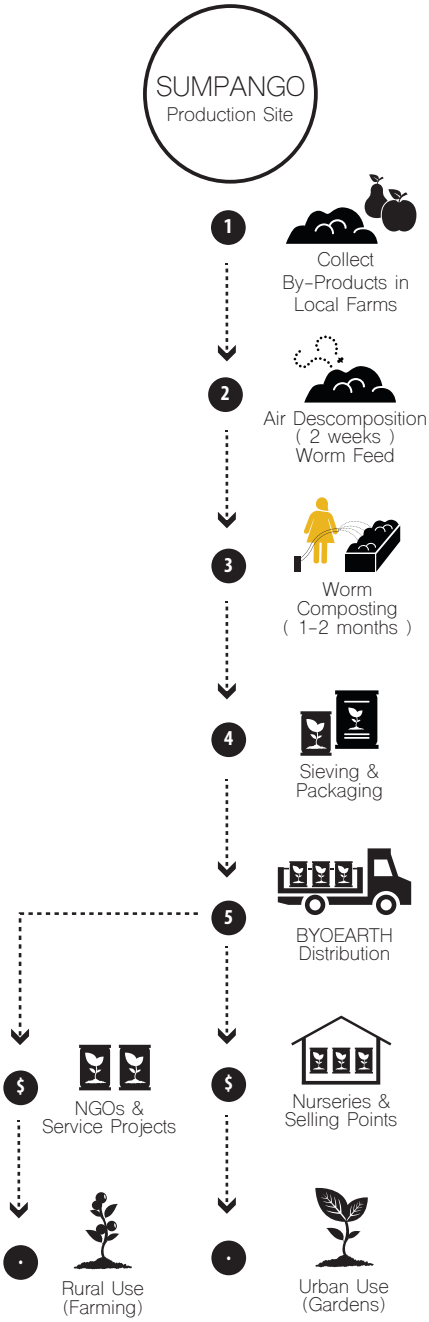
Their rapid independence has somehow troubled Byoearth on occasions, specifically when they need to purchase product from the cooperative in a specific time. Despite this situation, Byoearth identifies it is a positive development because they are growing independently as a new enterprise of worm compost and establishing good processes to grow and satisfy the rural market.

Cooperative 2: The Dependent Cooperative Approach to Sumpango Cooperative

Sumpango cooperative also started its activities in 2011. With help from Byoearth they built their vermicompost production site. This site had the capacity to produce up to 200 qq (20.000 kg) of organic fertilizer, which they reached for the first years of production. Many of the women in the cooperative accepted to be part of it, mostly to access a new form of income, but also showing a strong interest in worm cultivation.

The learning and growing experience of the women of Sumpango Cooperative went smoothly; but after some time their development was challenged by multiple factors. Social factors, such as lack of trust between its members, a theft of numerous tools from the production site, and management issues have defined a challenging development for Sumpango cooperative. In addition, small details, like the age of the women are suspected to limit their creativity and entrepreneurial spirit (Interview: Rodriguez, 2015). Moreover, other issues such as personal motives, family issues, or social pressures also affected the success of the cooperative. These challenges and the interaction of them resulted in a very peculiar cooperative case for Byoearth.

Due to its organisational challenges, lack of trust and transparency, they suffered of the lost of all worms, and therefore lost the production of fertilizer and the gains from it. This events turn to discouragement of more than half of the cooperative's members, leaving only 8 active members out of 25 that began in 2011. Sumpango is today highly dependent on Byoearth's distribution system and assistance to renovate their production as a cooperative. For all this reasons, I identified this as an important case to focus upon to explore how to strengthen the service of Byoearth by using design skills and tools.



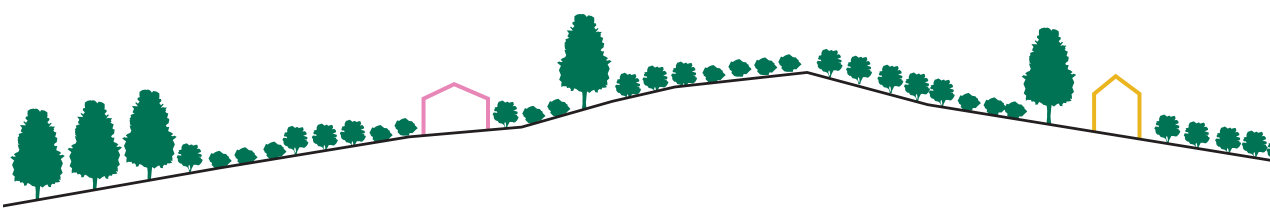
COOPERATIVE'S ACTIVITIES

San Bartolo and Sumpango cooperatives developed different processes. San Bartolo has adjusted the cycle of vermicompost by adding rabbits into the production process. In the other hand, Sumpango is still developing its own way through Byoearth's support. (Data Visualization, from Ethnographic Research)

5.4 Details of the Experience of Sumpango

Sumpango is a growing small-town located 45 kms from the capital city, in Chimaltenango, Guatemala. The majority of its population is ethnically Mayan, dedicated to farming and manufacturing traditional handicrafts. It is an important town for the rural context due to its rich cultural activities and because it is part of a developing region with ideal farming weather conditions. As they develop into a bigger town, their traditions and their environment are adversely affected.

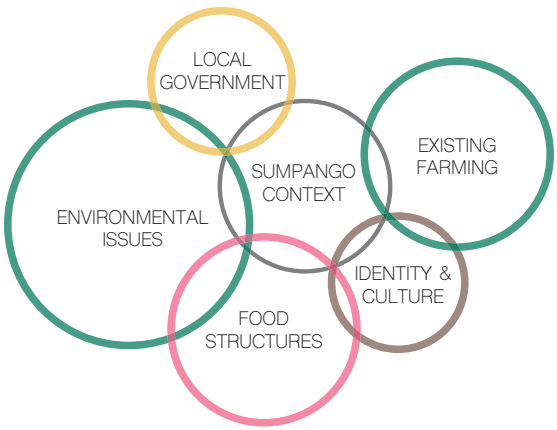
To begin with, the municipal government does not have a waste treatment plant. The majority of the population takes their garbage to an improvised landfill, or "botadero" and a lot of biodegradable and reusable waste is lost. Many people are not aware of the pollution this generates and that on the long run this could become a huge problem. Furthermore, they are also unaware of what they could do with this potentially valuable material or where they can sell it once it is processed into something useful.



SUMPANGO
Chimaltenango, Guatemala

40,000 inhabitants
40 kms from Guatemala City

LOCAL GOVERNMENT
_The local governors have been 18 years in the power.
_They are perceived as inefficient from the cooperative members.
_They are distrusted, hindering collaboration between citizens and government.



ENVIRONMENTAL ISSUES
_Most citizens in Sumpango bring their trash in containers and drop it weekly into the Municipal Landfill of Sumpango.
_The only separation is done by families separating by hand metal and glass to sell as material to recycle.
_Garbage is covered by the Local Government with soil every year (an area of 200x 100 x 20 meters has been filled throughout the growth of the town (20-30 years).

EXISTING FARMING
_Farming is a big activity of Sumpango economy.
_Some local crops market: Corn, Tomato, Beans, green beans, squash, and peppers.
_Self-subsistence Farming: Mainly corn and beans (some eat the vegetables for themselves)

IDENTITY & CULTURE
_The town is very rich in Mayan and identity traditions of different kinds.
_Several new-comers come to settle their business, creating some trust issues for old citizens.
_Family ties & Social Pressures are important factors affecting individual behaviour.
_Many of the people work in the city or providing small services for the town.

FOOD STRUCTURES
_The market is the meeting place for many citizens of Sumpango.
_The majority of people still attend to the market to buy their food or sell their harvest.
_The garbage generated in the Market is then collected by the Municipality and disposed in the landfill.

BYOEARTH: & FARMING PROBLEMATIC IN GUATEMALA

AT THE PRODUCTION SITE

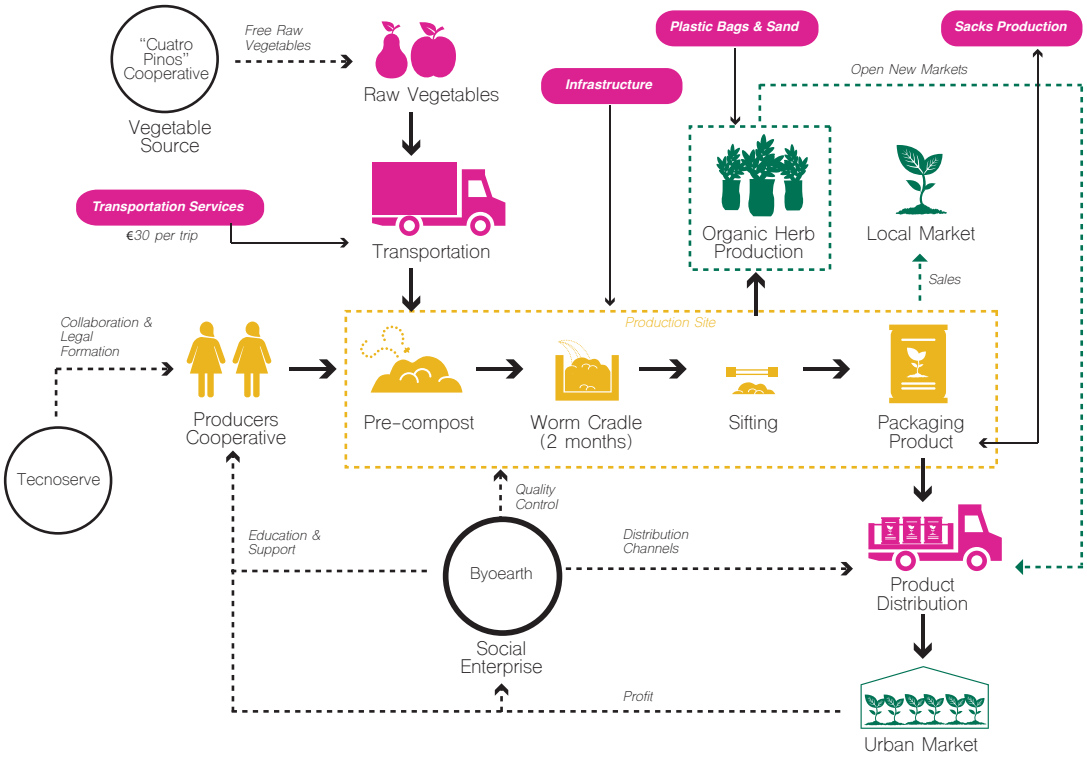
The production process is important to understand the level of work developed by the cooperative members:

The vermicompost production site of Sumpango cooperative is located at the outskirts of Sumpango. The surrounding of the site are cultivation lands where a great variety of crops grow. The characteristics of the area have great potential for the cooperative to develop into a sustainable local business. In this production site the members of the cooperative, mainly women, can harvest their crops and profit through their own means and skills. The women's achievements become visible in the delicate care they give to the earthworms. This can be seen in the description of the procedures taken to obtain the worm fertilizer:

> The production plant holds the different activities needed to get the fertilizer. There is a space and time for the different steps: air-filtration composting, worm composting, and packaging. To hold enough food for the earthworms, women collect misuse vegetable from a vegetable distributor in the region (20 kilometers away from the production site).
>
> The women will make a selection of vegetables and place it into the open-air composting area, mixed with decay leaves and horse manure, also collected in the surroundings. After two weeks of air-filtration composting, the pre-treated bio-waste material should be shifted into the soil beds and received as food by the earthworms. When the waste is in the beds, it should be mixed with the soil and watered to provide a humid and comfortable atmosphere for the worms. The worms -Eisenia foetida- will pursue the waste and move towards it. These worms would always need to be in a dark, warm and humid place, and have enough food waste to grow healthy and continue working on fertilizer's production.
>
> After two months, the women producers will alternate the food into another area of the bed and the worms will move towards it. This allows the women producers to remove the fertilizer when it is ready. After the women extract the fresh material, they sift it, and then pack it into different sizes to sell. The packages are then distributed through Byoearth's markets or into the local market.
>
> (Data from Ethnographic Research, 2014)

SYSTEM INTERACTION

In addition, it is also relevant to explain the system interaction within the different actors involved. Byoearth is still managing the sales process, while the women have already taken control of many of their individual processes, like vegetable collection and the different procedure to obtain the fertilizer in the collection site. Despite the success on the transfer of knowledge in which many women have acquired various skills to cultivate worms, compared to San Bartolo cooperative, Sumpango lacks initiative to operate alone. To gain independence from Byoearth and improve their benefits, they need to find distribution and selling channels within their own local market.



SERVICE SYSTEM MAP.
(Data: Ethnographic Reseach)

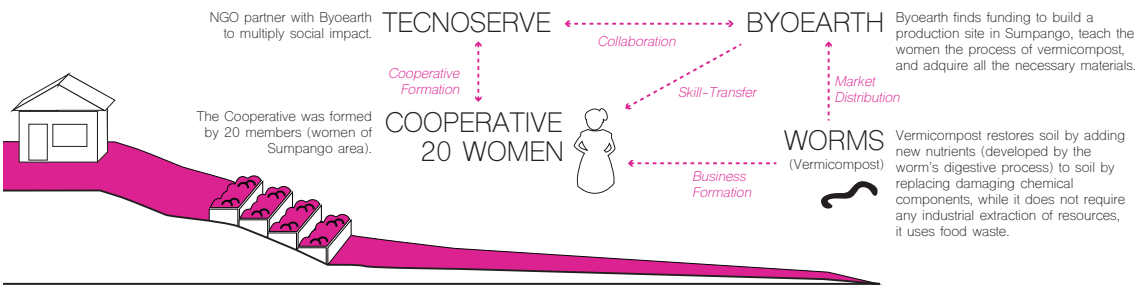
As stated before, multiple factors caused by the cooperatives' untrustworthy and opaque management of resources led to the loss of all worms and a significant decrease in economical gains and motivation. The different situations occurring through the last years of the cooperatives are explained visually and at length in a storyboard presented in the next pages. We can identify the workers' disappointment and abandonment of the cooperative's work and also, see the impact caused by the lack of internal communication in the cooperative, external causes like theft and plagues, the limitations of the cooperative's aging women who had difficulties developing practical and innovative activities, and therefore, the lack of implementation to reach their local market.

BEFORE BYOEARTH

Different cooperative members had a variety of worries.
At the same time, farmers of the region like Carlos suffer general issues to live from it.

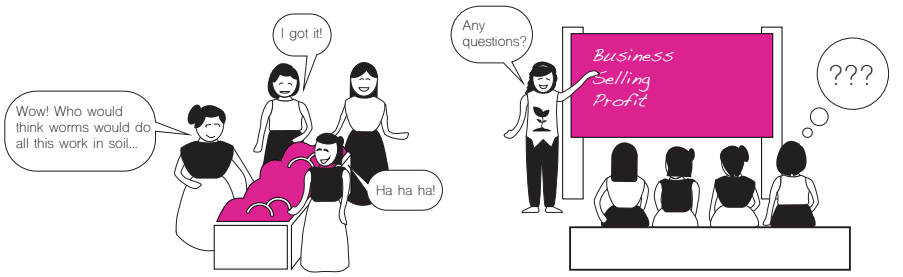
FOR A CHANGE

Different social initiatives come together intending to enable women with new skills, aims, and means to develop. Women are organizined in a "cooperative" business based on "selling fertilizer",



COOPERATIVE GROWS & LEARNS

The cooperative members found the worms very interesting and are enthusiast to learn about them.
Nevertheless, the idea of a business is still fuzzy and complicated.

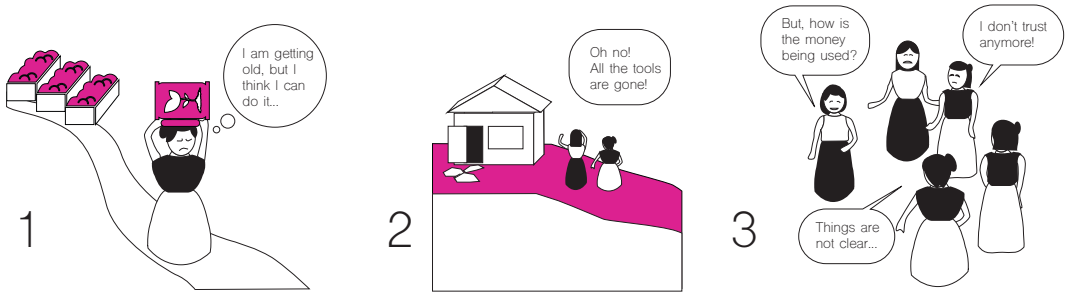


THE EXPERIENCE ...

For women in the cooperative the experience has been enriching. The work is only once a week, they make extra money, and they enjoy their work, sharing with other women and working with worms.

BUT, OVERTIME TROUBLES ARISE...

First, work became hard for older women. Second, they had a rubbery to the site. And third, the Cooperative lacked trust and creativity to develop successfully.

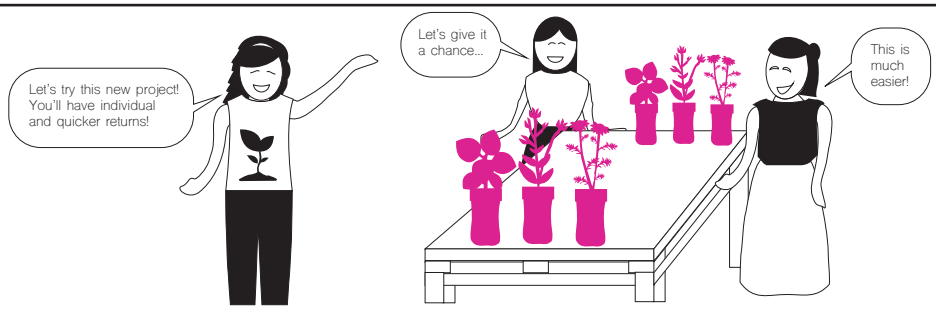


AND, MORE TROUBLES FOLLOWED

Some cooperative members left, the quality in the care of worms dropped, and a set of plagues killed a big amount of worms. Just when demand started to grow.

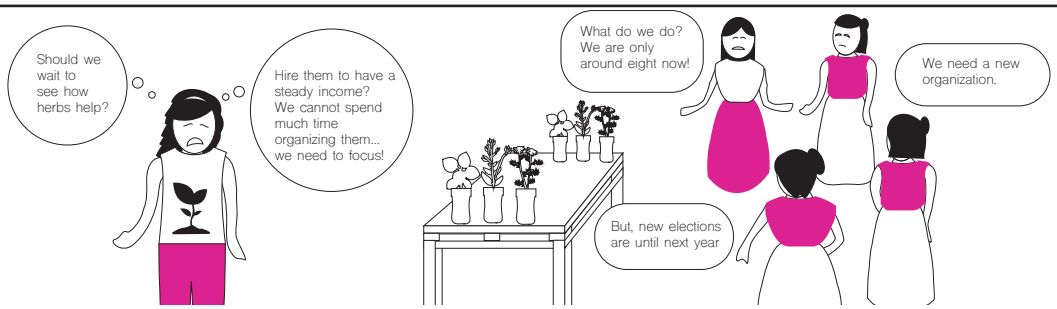
THEREFORE, BYOEARTH REACTED

Byoearth decided to implement a new experimental project with this cooperatie – herbs, with individual and quick gains, until the fertilizer production is active again.



SO A NEW VISION SHOULD DEVELOP...

Byoearth is looking for ways to restablish the production site through various methods.



STORYBOARD. TIMELINE OF SUMPANGO COOPERATIVE

This storyboard presents the transition of Sumpango cooperative and highlights the changing roles and attitudes of both Byoearth and the cooperatives. Throughout four years of collaboration many social challenges have arisen, and Byoearth tries to address them through creative solutions, implementing custom solutions for the group. To read better this storyboard try to identify personal behaviour and social motivation, and reactions to Byoearth processes.

5.5 Lessons Learned from Sumpango

The case of Sumpango has been a great learning experience for Byoearth. The challenges lead Byoearth to explore new solutions to satisfy the parallel needs that arise in communities. In this case Byoearth has identified that the underlying needs of ownership, social organization, and business understanding are of great importance for a cooperative to reach its full potential as a successful production site. These lessons are highlighted from Byoearth's Reports and Plan Documents:

First, when it comes to ownership, Byoearth has understood the sense of ownership to increase or decrease in relation to resources provided. In Byoearth's Strategic Growth Plan we can find the following reflections:

> "Some of these women do not feel a sense of ownership or responsibility for the project's success or failure as they have very little 'skin in the game'. Many of the productions inputs were financed entirely by NGOs and provide to the women at no-cost. As such, even the most successfully functioning cooperative expects hand-outs" (Byoearth, 2014)

Thus, the coming initiatives intend to define a better strategy to generate a sense of ownership and interest in their activities.

Second, when it comes to social organization, the lessons highlight the need to reinforce the control of social organization:

> "The success of the cooperatives is highly dependent on concepts of organisational discipline, collaboration, fairness, and trust. If the leadership of the cooperative does not exhibit these traits in the operation of the cooperative, it is destined to breakdown." (Byeoarth, 2014)

When approaching new communities, either from Byoearth or through developing collaborations with NGOs that deal with the reinforcement of social structures. In both cases, Byoearth has an important role to play in identifying the communities' structure and defining which enforcements should be developed to ensure long-term sustainability of their social and economic investments.

And third, when it comes to 'building a business ecosystem' to sustain productive activities, and for instance deal with the difficulties of a local market and partnerships, the lessons highlight a weakness in the transfer of skills of business formation;

> While the skills transfer of the production process has been rather successful, the women's knowledge of basic business concepts such a market demand, costs, and profit are somewhat disconnected from reality." (Byoearth, 2014).

The lessons listed above present aspects known and identified by Byoearth, itself. Byoearth acknowledges that women are lacking comprehension to develop business management. This highlights Byoearth is sensitive to understand the needs of communities, but how do Byoearth respond to their needs, and, what types of strategies they establish?

5.6 CREATIVE RESPONSES TO SOCIAL AND ECONOMIC CHALLENGES

It is worthwhile to take a closer look of how Byoearth has reacted to its own reflection and constraints. As they solve everyday challenges of an enterprise, they allow an open process for new opportunities and learning experiences to arise through them. Thus, this section provides an analysis of how social enterprises are using their flexibility to innovate in the arena of solutions, through their practices, resources and services.

In order to solve financial instability and market constraints, Byoearth has developed their own experiments, what I call micro-proposals: Each of these solutions uncover new possibilities of development for the social enterprise. In addition, these approaches represent possible solutions to their marketing and financial instability and to increase awareness of worm fertilizer to increase their sales.

FARMING WORKSHOPS

Workshops on Organic Farming that Open New Economic Flows

Learn-by-doing workshops that show citizens how to set their own organic garden, where people in the city were actively learning basic organic gardening and the use of worm fertilizer.

ANALYSIS

The first micro-proposal, the farming workshops, brings active participation and awareness to the urban market. But, despite the awareness raised, the participants would not use more than 1 or 2 sacks of Byoearth's fertilizer, which makes this micro-proposal a road to follow only if awareness of organic fertilizer use and production in the urban context is the main aim. The financial consultants suggest this is not a main goal for Byoearth and that the program should be allocated only a small quantity of the enterprise's resources.

FARMING CONSULTANCY TO OTHER NGOs

Reaching New Vulnerable Communities and Increase Farmers' Awareness

The social enterprise provides consultancy to remote communities, hired by NGOs, on how to develop an organic garden to have sufficient food to sustain themselves. They see the conditions of the place and design a garden that adapts to it, while they teach the people how to take care of it with the available resources. These consultancy services have been part of Byoearth's service from the start, but now they are developing the services as part of the strategy to reach new communities.

ANALYSIS

The second micro-proposal is the Farming Consultancy to other NGOs, this is one good service that Maria, the CEO, sees as one of the main ways to increase their social impact, but more than financial stability it has increased the ecological impact of Byoearth.

NEW HERB PRODUCTION

Reaching New Vulnerable Communities and Increase Farmers' Awareness

The production of medicinal and tea herbs was implemented in mid-2014. Byoearth transfer the skills, acquired the first herb plants, and guided the women until they acquired the good practices to reproduce the herbs. Soon, they were getting small financial returns and seeing the results of their work.

ANALYSIS

The third micro-proposal mentioned is the Herb Production was added to the community's processes as a lighter job for women and a quicker way to find financial return for the cooperative members. This third initiative has developed into a good way to motivate the women involved to continue in the cooperative's work and to continue developing their skills and knowledge, for instance in medicinal and culinary properties of the herbs. Juan Pablo, Byoearth's worker identifies: "I feel the women are getting new motivations with the herb project, I think they have great hope on it". This form of initiative was key to starting the restoration process of Sumpango cooperative, and a good response from the social enterprise.

Each of these has their own good and bad aspects and their own social and resources implications. To understand better how the three micro proposals benefitted Byoearth's activities, I evaluated the social and ecological impact. From the three micro-proposals I could observe each have different levels of success:

First, Micro-proposal No.2, the Farming Consultancy, has opened new collaborations and provided visibility to the company, while opening new projects and expanding its outreach to new communities in need. Through this consultancy project, they have educated different communities on how to grow different foods and how to build more sustainable ecosystems around their farming, taking into account the specific conditions of the place. Despite the remote locations, Byoearth has found a way to approach them with good collaboration methods and delegation of tasks with existing NGOs and enterprises also working in these contexts. Similarly, microproposal No.3, the new herb production, has been another one of Byoearth's positive impacts because of two main reasons: it has opened a new market and also, it has found novel ways to motivate the women in cooperatives and citizens in their own communities to grow their own herbs and sustainable food. On the other hand, micro-proposal No.1, farming workshops in the city, has required a lot of time from Byoearth's staff and yet, it reached only a small level of social impact. Nevertheless, this creative way of utilizing the available resources has helped Byoearth financially at some points in time.

Through the different projects in which they have been involved, Byoearth has taken great strides in the development of new knowledge and confidence in new experiences.

Today, Byoearth is in the process of identifying if the new strategy should be directed into strengthening their sales and market strategy, or if they should concentrate on developing a new market with a new social strategy. How should they continue? How can they reach more farmers? Decisions are to be made in the coming year and in these upcoming steps is where a designer's contribution could be most important – to define and visualize the characteristics of the various possibilities.

How can design help Byoearth overcome their outer and inner systemic challenges, through its nature. Where should the next steps be? How does design contribute at this point and in the context of Guatemala?


Impuestos
Plan
Socios
No Socios
Gastos
Bancos
Resultados
7 Kg
119 kg
Invertir
Libro
Agosto
Septiembre
#1-2-3-4-5.....100

DESIGN ANALISIS AND PROPOSAL

6

New Processes for Byoearth

To define a design proposal for a social innovation was very challenging. First, because I identified that the processes of Byoearth have defined very good solutions to deal with communities' needs. Second, because they have very few resources to work with at the moment, which restricted the proposals to very practical and low-cost solutions. Finally, it was also challenging to define solutions with only a partial collaboration with the social enterprise. Due to this numerous factors I decided to focus the design proposal for Byoearth on their social strategy. To improve it, I came up with a strategic design solution that establishes new organisational social processes to enable implementation through the empowerment, activation, participation and collaboration of the women in the cooperatives, or in new communities collaborating with Byoearth.

In this chapter, I would revise Byoearth's strategy, its focus and routes, which was discussed during interviews with Byoearth's management team. Then, I will explain the design process, highlighting the needs that were identified on it. Finally, I present the new strategic proposal, with action lines and design concepts that support it.

6.1 BYOEARTH RESOURCES AND CURRENT STRATEGY

To develop a sustainable service Byoearth has continuously polished its methods and processes. The different working platforms that have opened for Byoearth in the last years, have established different possibilities for the social enterprise. Nevertheless, sustainable scaling of social impact requires Byoearth to develop clear and effective strategies that allow them to evolve into sustainable services.

The existing resources and experience of Byoearth open new possibilities for the development of their social services. Therefore, the design strategy for Byeoarth is based on the findings of the social enterprises' strengths, weaknesses, opportunities, and threats, evaluated from a designer's perspective. As an introduction to this proposal, I present this findings in the following pages.

Byoearth organic fertilizer is good for the soil and restores it, covering ecological and social long-term needs.

Byoearth has big impact on food culture for different rural and urban communities in Guatemala.

Byoearth has an efficient model as an enterprise to support their social activities, having few external grants to support specific or strategic projects.

Byoearth has a lack of market stability that limits their growth in terms of worker's stability and scope.

The lack of stable markets limit the capacity to set deals with new customers, which constraint social impact and gains for cooperatives.

Lack of efficient social management on cooperative cooperation results on an inestable production.

Byoearth could not open their market to big producers due to its lack of constant and efficient production

Byoearth service could empower people to restore soil and reduce waste in Guatemala, improving the quality of life of subsistence farmers and their families.

Byoearth has build up a great network with different U.S. and Guatemalan Organizations that support its work.

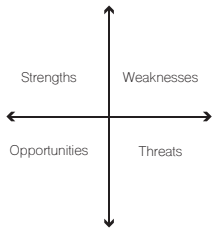
Byoearth organic structure allows them to prototype and test a new service model and measure it to understand its social benefits.

Byoearth compost and organic practices are not yet widely known by farmers in Guatemala.

Farmers use mostly chemical fertilizer because they are easier to manage.

Some vermicompost competitors have introduce a bad quality compost and damage the image of the product.

Byoearth is not certified as organic, which reduces the existing market.



SWOT ANALYSIS.
In this map of strengths, weaknesses, opportunities, and threats, I highlight the most relevant findings of the evaluation of Byoearth's service.

The capacity of Byoearth to reflect on their own processes, and their flexibility to innovate in solutions, highlight the potential and size of their structure to adapt to social needs. But, due to its limited resources, Byoearth cannot act on all the needs or they would lose focus (Interview: Elissa, 2014). When the needs are many, it is very difficult to keep focused. In this case, the focus should be defined through a strategy that makes possible to find a balance between creating and experimenting with solutions while keeping their focus. In order to understand and redefine this strategy, we will first identify how Byoearth iterate their solutions between creative and focused.

COLLABORATIONS

In the theoretical framework, I introduced how a social enterprise uses "effectual reasoning" to develop its goals. "Effectual reasoning" allows them to use their means and knowledge and transform them into solutions. Means could range from economical resources to particular know-how. Partnerships and collaborations also bring new means and dreams to the ecosystem that creates new knowledge and development to the company. (Sarasvathy, 2008).

Byoearth knows how to utilize their environment well. The whole evolution of Byoearth has occurred by way of collaborations. First, Maria Rodriguez, the manager and head of Byoearth, was able to grow the worms in an established farm, collaborating with this farm to exchange of resources. Soon, it developed into a self-sustaining company and found collaborations with NGOs, schools, and institutions to spread the products benefits into other social fields. Byoearth has collaborated with several social enterprises in Guatemala (Wakami, Cassa, etc.) partnering to develop sizable projects. Second, communities are also key collaboration partners to grow Byoearth's production. Overall, in Byoearth's development, the attitude and sensibility of the entrepreneur, Maria Rodriguez, has played a key role in driving the enterprise to act for people's needs. This awareness has driven her to work with a clear openness required to develop new collaborations in order to grow and learn from others.

"We always see something and want to do it; things pop up, we do more than we can. But, we need to decide the route with more potential."

(Elissa, Consultant for Byoearth)

CHALLENGES AND STRATEGIES

Byoearth strategy needs to be revised through the new needs of the enterprise and the communities they serve. Byoearth has found a way to stabilize their own business while developing good social innovation through their practices. Small but appropriate steps have established Byoearth as "a good company that provides worm fertilizer" in the city. Nevertheless, they have had financial, marketing, and sales issues to look upon:

- There is a competitor producing bad quality worm compost that has affected the product's liability
- There are big established organic and chemical fertilizers that have more production capacity than Byoearth, and these affects their customer coverage.
- There are uneven sales every month, which restrict them on hiring new people to evolve into a more formal enterprise.

These issues are of great concern to the social service of Byoearth. First, because the lack of sales harms the capacity of Byoearth to support the existing cooperatives while they develop their own local business, and also, because these issues restrict the capacity to teach their services to new cooperatives.

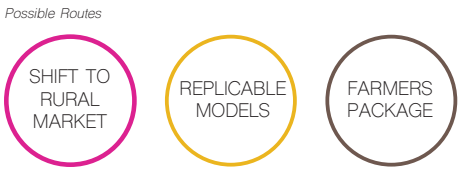
After identifying these challenges, Byoearth has identify they would need to improve in the following areas:

Risks of Scaling:

Byoearth potential to grow is through social impact... The challenge is growing with a right speed, right team, staying aligned to the vision, and have enough money to do it.

(Elissa, Consultant for Byoearth)

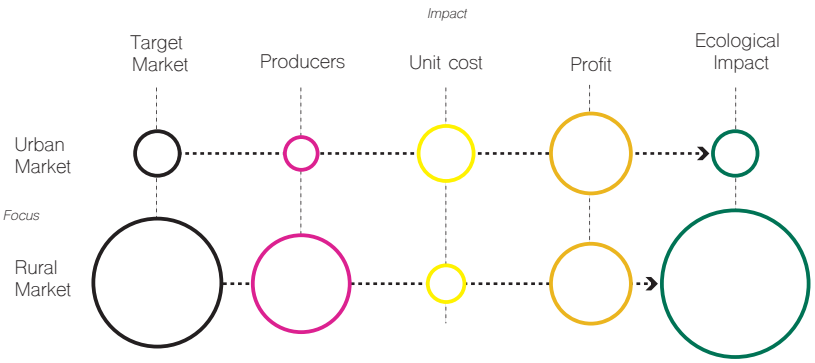
Some of the routes they are evaluating are: (1) to shift their market focus to the rural market, (2) to structure their activities to be replicable by other enterprises, in order to increase their social impact, and (3) to design a package of services to satisfy specific subsistence farmers needs. These ideas, will be possible if there is an accurate plan that can support their implementation.



POSSIBLE ROUTES OF BYOEARTH. These three possible routes are being evaluated by Byoearth to define its new strategy focus for the next years. (Interviews, Management Team)

MARKET STRATEGY

For a long time, Byoearth has focused on the urban market, as it was organically part of the ecosystem of the entrepreneur. In the last years, Byoearth has found barriers on growing through one of its target markets: urban dwellers. Although some of these customers are turning to 'organic lifestyles', they are not in urgent need of doing so. As urban dwellers livelihood is sustained by income instead of the natural environment, this is not an urgent need for many. In addition, some limitations in the urban market include larger competitors, which cover large number of needs by existing services, and a small farming economy. If Byoearth should grow, it should be through rural customers.



MARKET STRATEGY. Byeoarth has understood that to increase ecological impact they should change their market strategy from the urban to the rural. And, if they do, they should find new ways to engage the customers, and produce enough to satisfy that market. (Interviews, Management Team)

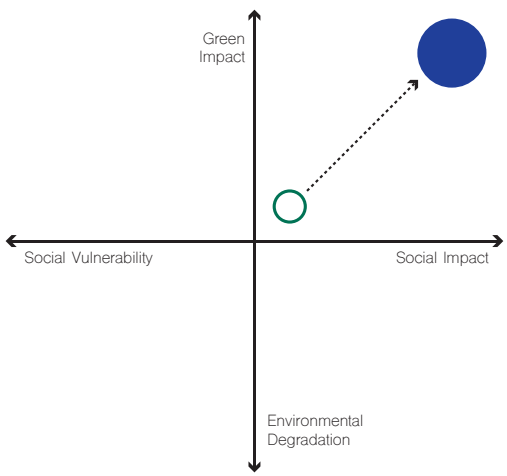
Regardless of the strategy focus, Byoearth considers that its greatest asset is its product: vermicompost. The mainstream use of their product will always have positive effects, as it reduces the use of chemical fertilizer and avoids organic waste to fill dumpsters. Therefore, they intend to share the vermicompost knowledge with rural customers, farmers and subsistence farmers, who can change directly the farming methods they use -if they are informed accurately of the benefits and understand the systemic gains-. To do so, they should find ways to engage the customers, and increase their production to satisfy that big market.

6.2 TOWARDS A BETTER SOCIAL STRATEGY

When developing its own strategy, it is possible that Byoearth is missing the large picture, failing to apply the lessons learned from Sumpango Cooperative's Case on a larger scale. For instance, one of the initiatives from Byoearth to tackle Sumpango's challenges was to hire the cooperative members as part of their company. But this solution could not be applied to other cases and perhaps, in the long run make the communities more reliant on Byoearth. In the basis of a better social impact this solution wouldn't improve the community integrally.

In fact, some opportunities can be identified from the resources around them. For instance, the analysis of the urban context of Sumpango, shows there is a missed opportunity of using local waste to reduce the cooperative's costs and the town's waste. In this case, the town citizens are local producers of large quantity of organic waste. As the garbage management is inefficient, such waste is currently mixed with toxic waste. In this scheme, Byoearth is not able to change such dynamics. But, being able to use some of the town's organic waste, they could be part of the solution. Perhaps there is a need to find another social enterprise, an enterprise, or an interested instance of the government, to collaborate, which can take care of this issue.

Byoearth points out they cannot focus on all the needs of people, but they would like to focus on the creation of income and soil restoration with its products (Interviews, 2014). Therefore, it is important for them to form a strategy that corresponds with this focus. Their strategy should combine social and economical activities that increase the use of worm fertilizer and restore soil and productivity in Guatemala.



AIMS AND IMPACT.
Byoearth aims to increase their impact, to improve the natural environment and social conditions at the same time.
(Interviews, Management Team)

But, in order to focus they need to visualize their collaborations and build relationships with other social enterprises, NGOs, government entities, etc. Strategic design and visualization can allow Byoearth to develop a clearer understanding of their steps. Moreover, collaboration paths could be beneficial to scale their impact. Design analysis first tries to define: What other collaborations would be beneficial? What products will be needed? What services could be changed?

"Trying to stay focused is hard when there is so much need"

(Elissa, Consultant for Byeoarth)

In a holistic approach, looking at the interrelationship of the factors of the soil problematic, design has to develop a new brief to increase the impact.

EVALUATING INTERRELATED NEEDS FOR A NEW STRATEGY

When evaluating how social, economical, and ecological needs interact for a community, we can find there are many aspects that cannot be tackled by Byoearth.

SOCIAL ACTION SCOPES WHEN FACING MULTIPLE CHALLENGES IN SOCIAL NEEDS.

The different bubbles show the interlinked challenges that have arisen when Byoearth has deal with soil restoration. Each colour represents an area of challenges; pink is for social issues, yellow for economical issues, and green to environmental areas.

SOIL RESTORATION BY BYOEARTH

SOIL RESTORATION BY GOVERNMENT

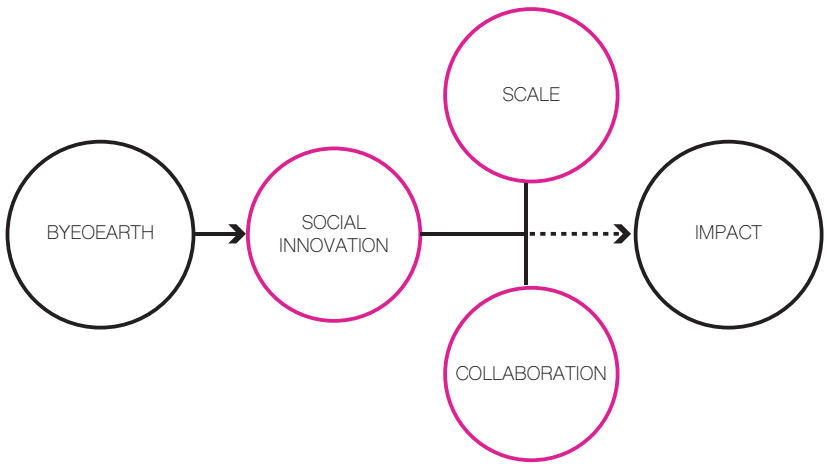
SOIL RESTORATION BY NGO

SOCIAL ACTION SCOPES WHEN FACING MULTIPLE CHALLENGES IN SOCIAL NEEDS.

In the following circle diagrams it is analysed how soil restoration is being addressed by Byoearth, government, and NGOs (full circles represent good approaches to the issue, dotted circles explain there is some kind of approach, and transparent is used when there is no initiative to tackle such issue.

The analysis of interrelated needs highlight that the main challenges that Byoearth faces in order to develop further their services into sustainability is not selling, as such, but social engagement and involvement to raise the sales and impact. I have identified the following factors as areas that could be improved upon: (1) developing people's skills into social empowerment, (2) developing their management knowledge, (3) providing better guidance for people to develop their business ecosystem, (4) integrating communities better to successfully run the cooperatives, and (5) providing guidance on how to reach the local market.

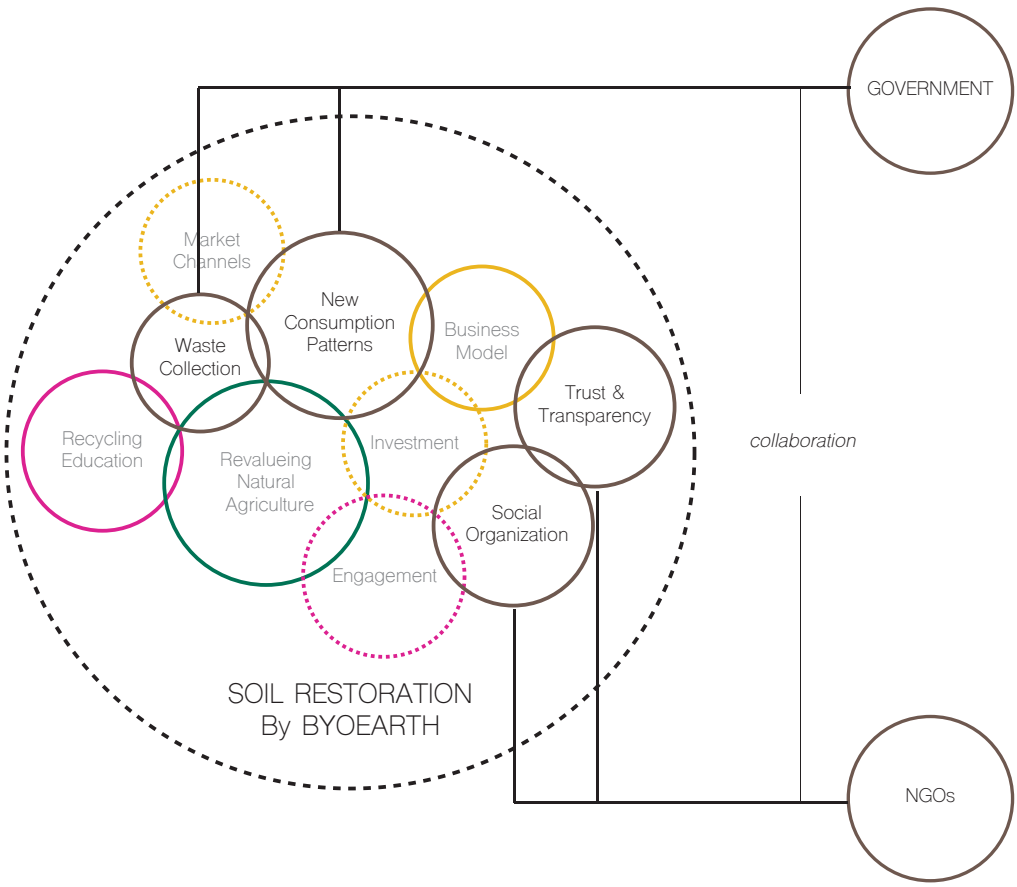
For instance, if their aim with cooperatives is to help them be self-sustainable, Byoearth's strategy requires an adjustment of the service - into delivering specific skills to cooperative members. It requires empowering a creative person in the cooperative to develop his or her skills in creating a network to sell the product in their town, or facilitating a set of organisational structure, while enhancing the selling spirit of the most motivated members. It is not required that Byoearth spend too many resources in teaching or providing these services. This could be achieved through the design of easy-to-read manuals, collaborations with interested NGOs, or through a closer consultancy service to identify and enforce their strengths. Trusting in the cooperative members to develop their own support system, will have better outcomes in the long-run.



SOCIAL INNOVATION WHEN SCALING FOR GREATER IMPACT SHOULD USE COLLABORATION (Author)

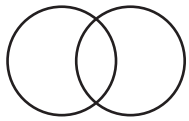
To increase the use of vermicomposting, market growth is also important. There is a need to outreach to new communities for the social enterprise to grow. But, for growth to be successful, first it is important to cover the social gaps that could help the participating women become more involved in their cooperative's success. The following diagram proposes several collaboration processes with Government and Non-Governmental Organizations (NGOs) to cover the gaps for social services without Byoearth loosing focus. First, it is proposed to collaborate with government, in the local and national level to integrate waste management systems and consumption regulations. Second, other issues could be solved by NGOs experience in social organization and communication. In addition, government and NGOs are more experienced and connected in the rural areas. Therefore, such collaboration will increase the impact of Byoearth by easing the conditions of communities and facilitating their ability to act in the rural context.

PROPOSAL FOR
COLLABORATION TO COVER
EXISTING GAPS OF BYOEARTH



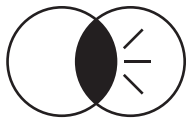
6.3 THE NEW SOCIAL STRATEGY

As I have introduced in the last section, the new strategy of Byoearth should focus on social capital and collaborations. In this new strategy, Byoearth should become an enabler for communities to be empowered and develop their resources to self-sustain their livelihood with sustainable farming. This would mean, in a practical level, that Byoearth should reinforce their service in different levels, which I define in six actions:



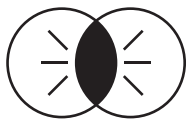
1. Get to Know

Adapt teaching methods to the women's understanding and culture, in order to delegate social service.



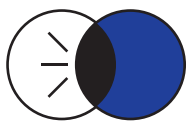
2. Teach & Delegate

Find and use a common language where the transfer of knowledge can be clear and be shared between the existing and new members in collaboration for a same goal.



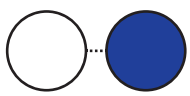
3. Shared Knowledge

Adapt its market research and strategy for the Rural Market, to serve wherever is most needed.



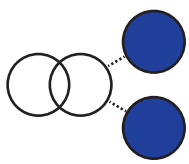
4. Serve the Need

Find strategic collaborations to focus on their growth while still serving the multiple communities' needs, to be efficient and satisfy better social needs.



5. Self-Sustenance

Develop a support system for individual's to activate their local ecosystem: providing them with knowledge and control methods to collaborate better between cooperatives and rural entities in the same goal.



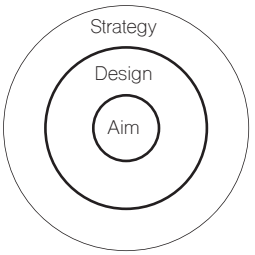
6. Be Active

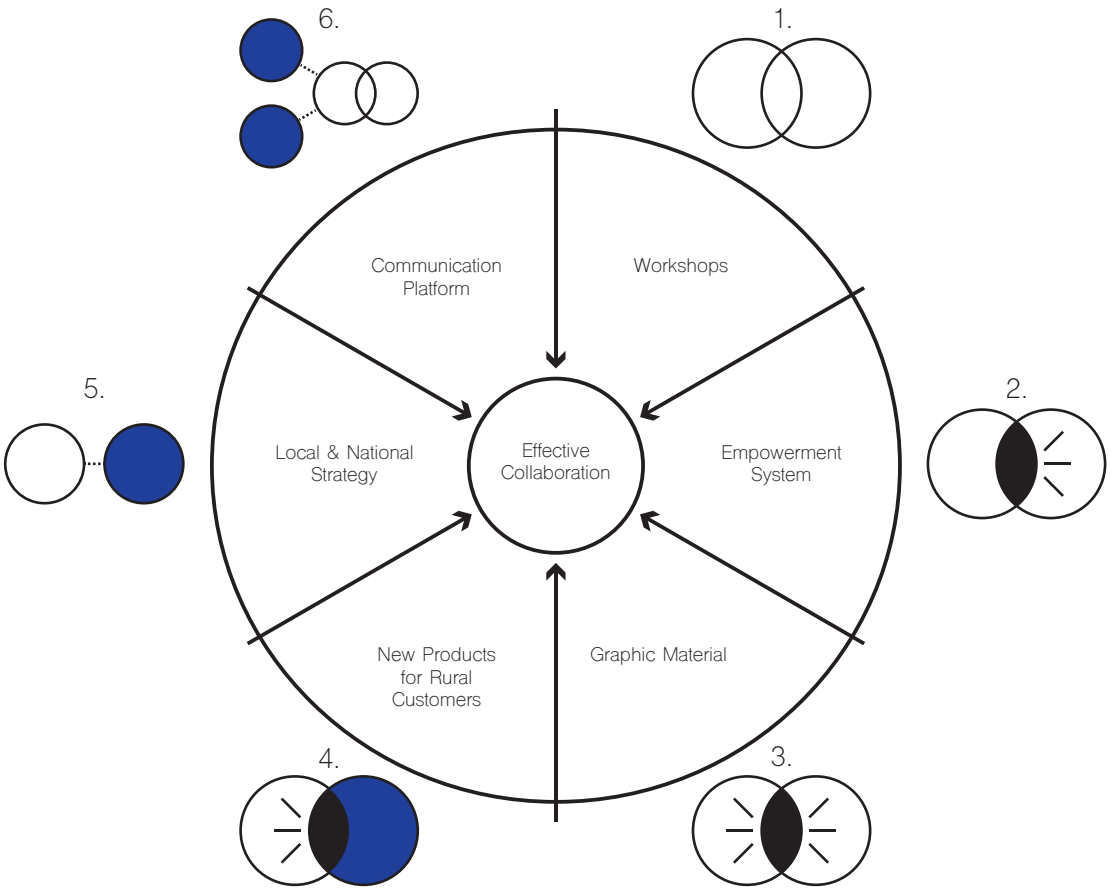
Find new research and practical methodologies to understand communities' needs deeply through their evolution.

DESIGN INTERVENTIONS IN THE NEW SOCIAL STRATEGY

In order to support Byoearth in this process, some design interventions can help improve social dynamics in the cooperatives. These design interventions have been a result of the analysis of the needs, from existing activities of Byoearth and the new strategic components suggested.

In the following diagram, we will illustrate how these needs are transformed into design interventions, forming together a flexible platform for new collaborations to evolve through empowerment and participation.





DESIGN INTERVENTIONS IN THE NEW SOCIAL STRATEGY

W

WORKSHOPS

Effective transfer-skill and involvement methods.

ES

EMPOWERMENT SYSTEM

Tools to interact with communities and develop a closer understanding of their needs, to support aspects like control, ecosystem support, and effective service system.

GM

GRAPHIC MATERIAL

Graphical and communication methods to develop shared understanding to share knowledge and design new processes. And, graphic tools to visualize strategies clearly to articulate their next steps in collaboration.

NP

NEW PRODUCTS FOR THE RURAL AREAS

Design of products and systems that support rural needs, budgets and requirements.

S

LOCAL AND NATIONAL STRATEGY

Research on market possibilities and social needs of the rural context.

CP

COMMUNICATION PLATFORM

Open new possibilities to collaborate and reach their specific goals, instead of focusing on partnerships that arise for other purposes.

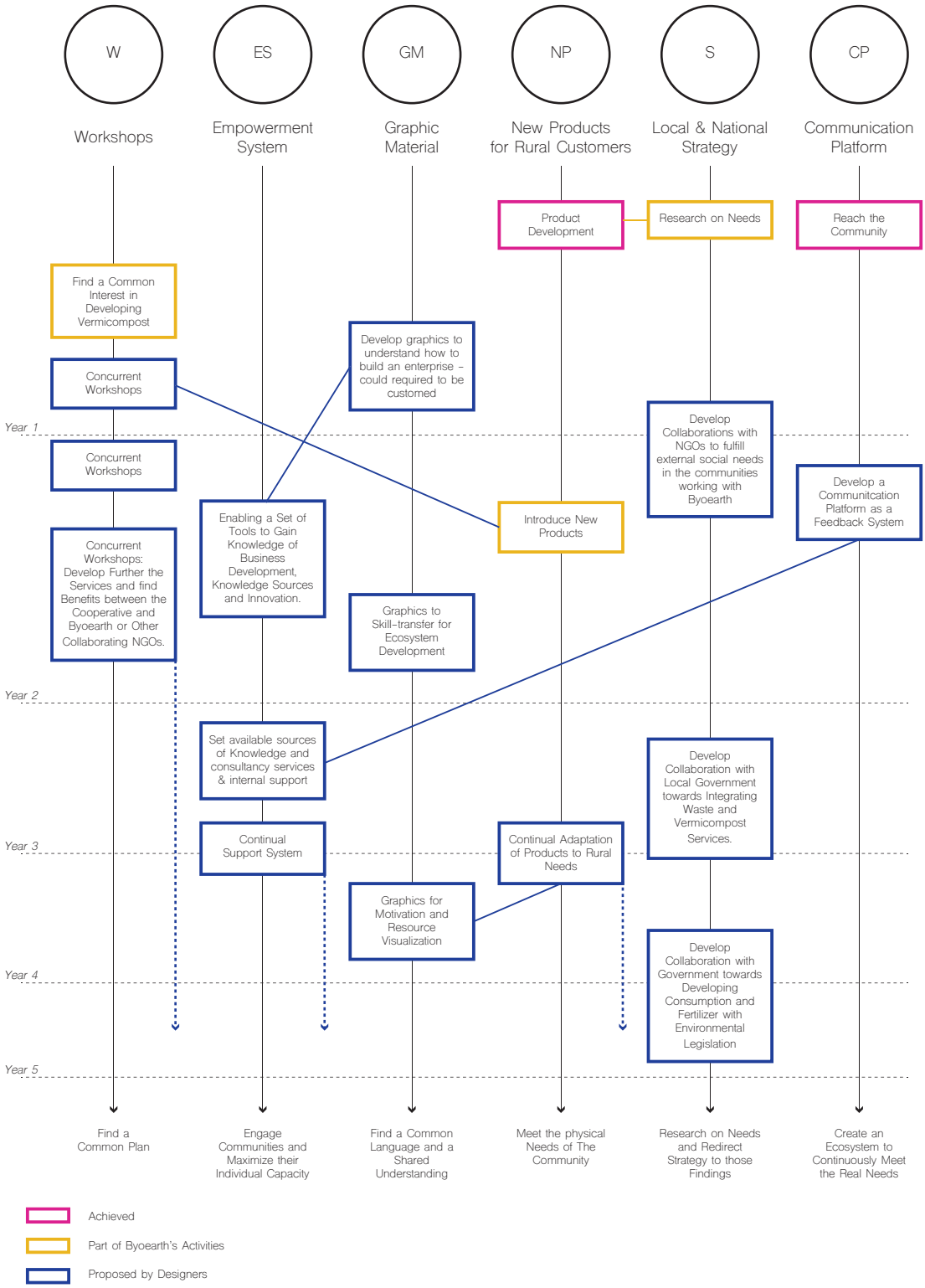
6.4 IMPLEMENTATION PLAN

The design proposal acknowledges that Byoearth's processes cannot be rigid. Instead, any proposal should adapt to new arising needs and constraints that may appear. Therefore, the design is adapted to Byoearth's particular means. And as these means are limited, the design proposal establishes the need of collaboration to reach other social aspect, that perhaps constraint the enterprise's aims.

It is important that Byoearth takes its social strategy as a core of its activities, and adapts their opportunities and the organic development of the enterprise to their long-term and social aims. For this purpose, the design proposal includes a roadmap to guide Byoearth in the collaboration with designers and other entities to achieve a good implementation process. Using Byoearth capacity to design the implementation is proposed to be a continuous design process.

ROADMAP
This is a plan for the social enterprise to use the components of the design proposal. It is supposed to be flexible, but at the same time suggest a route in which design interventions and collaborations could occur to achieve greater impact of Byeoarth's existing services.

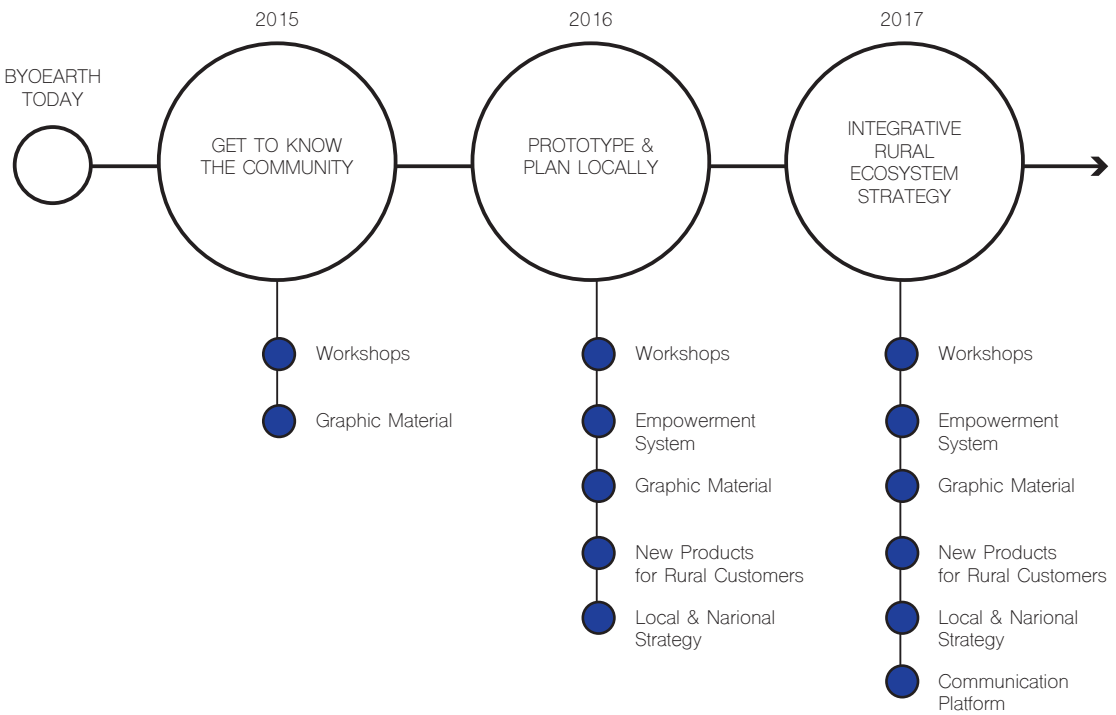
ROADMAP FOR IMPLEMENTATION



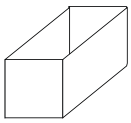
6.5 DESIGN INTERVENTIONS TO START

The first steps implementation are explained in three design projects that aims to ease the scaling of Byoearth's service, and four "Small Interventions" that allow to suggest concrete steps. These design interventions contemplate a continual reflection and redirection of the social components to grow, adapting the process to the specific context and means.

In addition, these three design interventions are complementing each other, establishing three intervention steps: (a) Understanding the Community Workshops, (b) Prototype & Plan Locally, and (c) Ecosystem & Collaboration. First, design should contribute to get to know the community, through workshops and graphic material, in a form to establish what needs to be tackled. Second, prototypes could be developed in order to obtain better insights and set the first solutions to serve local social needs. Finally, based on the two previous projects, the design of an ecosystem should be defined. Such design interventions can be applied in the existing communities, as well as in new communities that could be approached by Byoearth in the future.



Teaching Material



Working Materal

Graphic Manual
+ Research Form

Design a process to get to know the community and understand the possibilities of success or the major risks of failure. (Design for Understanding)

OBJECTIVE

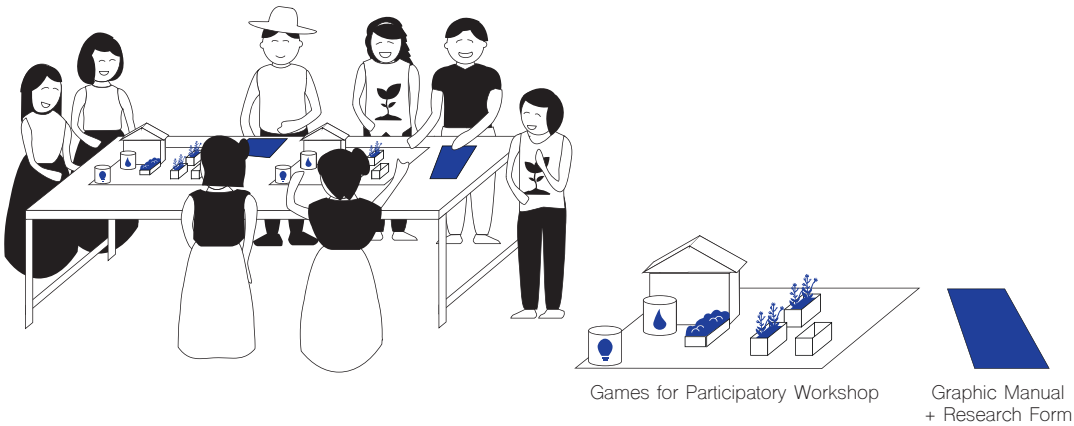
To design workshops and material that compliment Byoearth's material to get to know the needs and the structure of communities.

STEPS

1. Set objectives of what types of knowledge needs to be gathered on new communities, according to the experiences of Byoearth with communities, and complement with sustainable criteria.
2. Analysis of existing material and methods when approaching new communities
3. Re-design of new material (Graphical and Workshops)
4. Prototype and Try
5. Re-design according to objectives.

PRINCIPLES

- Develop a flexible way to conduct the study of communities, according to different projects that could be required by different NGOs or Byoearth's objectives.
- Develop material that does not require the use of any computer, or technology; that lasts in rural conditions (dust, water, etc.) and that is possible to use in various communities. Develop material that could be practical to use and unserstand by Byoearth's team or other NGOs.
- Develop a way the data could be collected into a database that could be used in the future by Byoearth or selled to other NGOs as valuable information.



Participatory Design through Games, Graphic, and Practical Material for Skill-transfer Modules (Design for Empowerment)

OBJECTIVE

To ease the understanding of taking care of Byoearth's worms, and the herbs, fruit and vegetable gardens.
To serve new communities approached by Byoearth

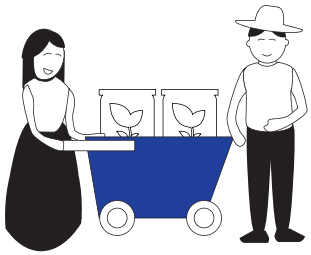
STEPS

1. Design Workshops
2. Try Workshop in existing or probe communities
3. Re-design Workshops for new communities

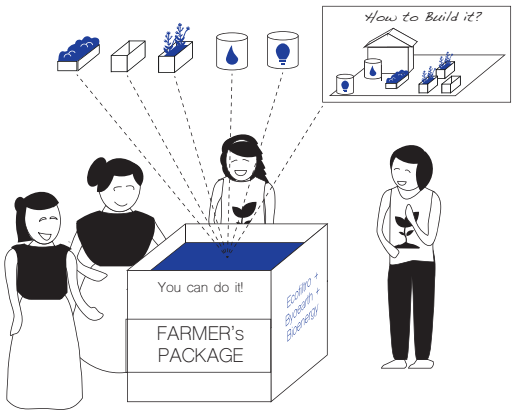
PRINCIPLES

- Serve people's need of knowledge through their own capacities based on their practical skills and cultural development.
- Be clear and develop a shared knowledge on how to take care of the worms, and the last knowledge on organic agriculture and permaculture to grow herbs, fruits, and vegetable gardens.
- Remember that these values are inherent to the Mayan culture, therefore try to deliver knowledge on the new opportunities of using this practices again to develop themselves and their families.
- Develop characters based on farmer's understanding and knowledge.
- Develop material that does not use computarized-technology; that lasts in rural conditions (dust, water, etc.) and adaptable to various communities.
- Develop material that could be practical to use for Byoearth's team, and that could be easy to reproduce for use by the cooperatives to transfer their skills to other communities or farmers.

Design Based on Previous Participatory Design Workshops & New Collaborations



Sumpango Cooperative Improvements



Farmer's Package for New Communities

Empowerment and Rural Market Strategy
(Design for Scaling)

OBJECTIVE

Build a strategy to develop an ecosystem around the product-service system. Design a System for the service, and develop Strategic Partnerships

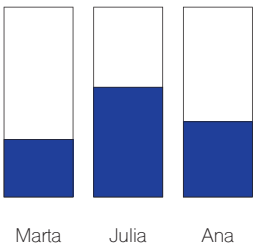
STEPS

1. Research on Customers Needs and Localities
2. Conduct a deep research on three communities' structure: How do they buy and sell their produce? What do they gain? What are the environmental and social problems faced? What could be the values pertinent to involving them in organic food production? How could they be related to other markets?
3. Form an interdisciplinary team: business developers, designers, environmental engineers, and sociologists in order to build an integral and encompassing service. Use design service to involve communities in a chain of empowerment and design a Roadmap to implement that strategy.
4. Define the Strategic Partnerships needed to implement and the legal framework needed to ensure qualitative development of the process.

PRINCIPLES

- Develop a holistic understanding of the rural contexts, its constraints, values, and potentialities to develop the strategy.
- Work with an interdisciplinary team designing services that responds to this context and is able to evaluate and redesign.
- The service should be adaptable to Guatemala's different contexts, and have possibility to be measured and controlled by Byoearth.
- The service should enhance Mayan traditions without disrupting the cultural throve of the communities, while contributing to their goals as well.

BEST SELLERS RANKING
Local Sales Sumpango



Internal contests for cooperative members to improve sales and increase awareness in the town.

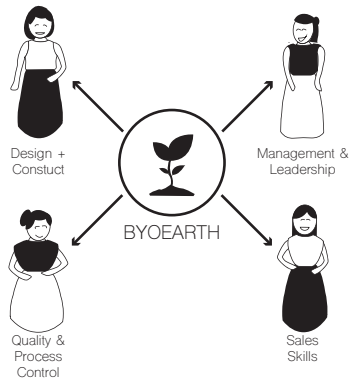
COLLECTION IN TOWN

A movable garbage can where people can deposit their organic garbage and cooperative members can take it to the production site once a week.

TRY WORM FERTILIZER
Workghop for Sumpango
Farmer by S. Cooperative

A worm fair where women can show better their products to their local customers, farmers and subsistence farmers.

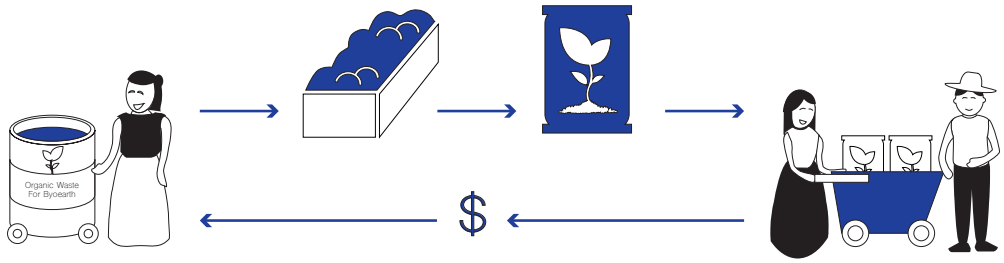
IMPROVE
INDIVIDUAL SKILLS



Individual skill improvement for members of the cooperative. This aims to empower them by giving them a specific knowledge to use them to improve their cooperative.

BYOEARTH AND SUMPANGO IN 2020

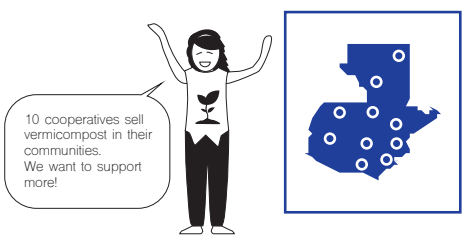
SCENARIO 2020 Cooperative	Sumpango Cooperative has developed a closed collection-and-sales system to supply the local farmers efficiently, with good gains.



The cooperative soon wants to try new ideas to use the individual skills they learnt.

SCENARIO 2020 Byoearth	Byoearth finds in the existing cooperatives a form to reach, teach, and support new coopeartives in other communities of Guatemala.

Byoearth is able to serve more communities, employ women on transfer-skill services, and reach more farmers to use vermicompost to improve the quality of soil, food, and life.



STORYBOARD SCENARIO 2020.

The strategy and roadmap proposed before aims to develop positive outcomes in the community of Sumpango and in Byoearth. To be clear on which are these aims, I have elaborated these Scenarios.

CONCLUSION AND DISCUSSION

7

In the previous chapters, I presented the general context of Guatemala, the social enterprises movement emerging and the case study with the parallel initiatives to the problem of farming and soil restoration of Guatemala. After exploring in detail Byoearth's model and services to serve social needs across time and through working in a design strategy, some conclusions on how social enterprises deal with community development and the role of designers' role could be drawn, and many discussions can be open.

7.1 CONTRIBUTIONS

This study has explored the benefits of social enterprises to sustainable development in Guatemala, while identifying the ways in which design and designers could contribute to improve social enterprises' impact in this context. Therefore, one main contributions of this work is an in-depth study of Byoearth services that identifies the characteristics of their work in contrast to other social actors. The process of Byoearth was constructed and analysed by design research and design analysis tools. Here, design thinking, diagrams, system maps, and storyboards serve to evaluate the research conducted. From my particular design proposal, strategic design interventions aim to respond to the challenges and drawbacks identified in Byoearth's analysis, and highlight the possibilities of design to solve social enterprises' challenges.

In the first part of this study, I found that many of the social enterprises are shown to be important to change, or disrupt, the existing models of satisfying social needs, specifically where governments, non-governmental organizations, and capital businesses have been inefficient in satisfying specific social needs. Their innovative combinations of business practices and social interest, are still taking form, and therefore it is not possible to measure what works best in the long run. Therefore, I choose to evaluate in the individual case of Byoearth, the social enterprises model, service, and strategy to define its specific contributions to Guatemalan context. And I suggest each social enterprise should also be evaluated, similarly, independent.

Specifically, the experiences of Byoearth suggest that social needs can be covered through empowerment, knowledge, awareness, skills, and services that dialogue with the criteria of sustainability. In this form, social enterprises are enablers for communities, not only solving immediate needs, but also wellbeing and environmental sustainability. In addition, the analysis of its challenges suggests that it is important to strengthen organization, access to new networks, and management skills to increase empowerment, for communities to have more resources and means to transform their environment, disrupting the existing social structure that may suppress them.

To elaborate on these findings, I will highlight the most important insights of the study of social enterprises, by discussing how Byoearth contribute to sustainable development in Guatemala.

- Social enterprises are able to empower people through their services. The case study of Byoearth evidenced empowerment is achieved for some individuals through their work in cooperatives. It would depend on specific needs of people. In Byoearth's experience, they have had some good and bad experiences with cooperative leaders, which have influenced the empowerment. The challenges have shown that when the cooperative lacks of good understanding and organization the multiple needs of communities become more evident and problematic. In some cases, like Sumpango cooperative, Byoearth was inefficient to empower people through monetary means, and therefore, only those that can afford it and are motivated to get the other benefits (community, learning, hope) will stay active and work in the cooperative. This also means social enterprises, in their specific activities and nature, can empower people to be active without economical gains, if the benefits are of interest of the individual. To keep motivation up, the additional benefits should be clearly explained and define when they will be able to have economic gains, if this is the final aim.

- When empowering, social enterprises also deal with historic, cultural, and individual perceptions to solve the organisational problems. In the case of Guatemala, matters like the country's history of inequality and an established power relation between societal groups also conditions the individual capacity to act upon their means. In Byoearth's case, many of the cooperative members of Sumpango were influenced by such lack of power, feeling insufficient to take a leadership role, for instance because they lack an education degree, which lead them to drop the cooperative and avoid facing the existing power issues that the cooperative organization faced. Therefore, social enterprises' work requires more than a set of skill-transfer and physical resources.

- Social enterprises can approach the community very close. As the collaboration has grown between the community and the social enterprise, Byoearth has adapted their support and services to the communities' needs. A social enterprise evolves through time, defining how to improve their product and service as they get to know more about the needs of the people. Here social enterprises may also able to identify the values and culture in which people place meaning and hope.

- Some social enterprises are identifying and responding to systemic patterns and problems. Here, the capacity and experience of the entrepreneur is a key element. This capacity can be developed in entrepreneurial programs with social focus. In addition, systemic patterns can also be better identified with good participatory or design research methods, where the entrepreneur can understand how the different perspectives of a problem match in a system to provide holistic solutions.

- A social enterprise approaches a community with a product or service. The benefits of the product or service establish how good is the enterprise's work to tackle social needs. The service or product of a social enterprise should always aim to improve over time to approach needs better and adapt for new needs. The more ecological the product the better, the more integrative the service the better. If the product or service is not working, collaboration can help to provide solutions that respond accurately to the most urgent needs. Solution-providers working in or with social enterprises, like designers and entrepreneurs, need to define and redefine a "better" brief, aiming to cover better the needs over time. With this process they can develop customized solutions that fit in people's lives, cultures, and values, while bringing them better quality of life.

- Social enterprises present a new structure for approaching social needs: they can be flexible, learn, and react. Under the conditions that Byoearth presented, they can tackle needs that other social actors like government, have been inefficient to cover. In the study of Byoearth and other social enterprises in Guatemala, I identify social enterprises are dealing with some social issues that are supposed to be solved by central or local government. This is suspected to be the result of the different flexibility and size of each social enterprise. This insight should concern social enterprises, they should be aware that in scaling they risk becoming one more inefficient institution. In Byoearth's case, they already work in several communities, and therefore, instead of focusing in scaling their activities for new communities, so they would benefit from focus on the individual's assets and provide sustainability to the existing communities they assist. When they are able to improve a community in this measure, they could focus on a new development, where they will need to be open to learn and adapt to a new context.

• Social enterprises start by enjoying their work; many do it for free, often start with nothing and are passionate about what they do. The satisfaction of the workers in a social enterprise is key to the good development of their work. Therefore, social enterprises should keep on fostering motivation, monetary and personal, over time, to maintain its impact. This suggests the support system around social enterprises should also grow, with more investments and more incentives that challenge them to improve social strategies.

I find these highlights of social enterprises important because I believe designers should collaborate with these flexible structures to be able to develop more sustainable solutions for today's needs. Design, as a shaping discipline, should not follow unsustainable businesses, corrupted governments, or bureaucratic structures that condemn our world in maintaining the terrible situations in which we live. Moreover, it is not possible that designers can change something alone. Therefore, designers should work in or with disrupting models like social enterprises, to experiment freely in solutions that could improve the lives of the most vulnerable without disrupting the natural ecosystem. Thus, in the second part of this study, I evaluated the contributions that design can have for social enterprises.

DESIGN FOR SOCIAL ENTERPRISES

The first capacity that could be of contribution to social enterprises is the experience of design in solving case-specific issues. Then, the result possibilities will more depend on the social enterprises' needs and in the specific design capabilities in which designer and entrepreneurs can find a common benefit.

Another form of design contribution will be a punctual assignment. The social enterprise could identify a need for a new space, a product design, marketing graphics, or other specific design solution to improve their practices. For instance, Byoearth has used this form of design to improve their brand, websites, and the infrastructure of cooperative's production sites. But, not all designed services or products could be beneficial to social enterprise processes. We should remember here Víctor Papanek's critiques on design for an industrial, material, and consumerist society and try to move far away from it. As the study suggested, social enterprises should have environmental friendly products and services. It is important that the designer recognizes that perhaps its skills -to design buildings, industries, and fashion- are not needed, but rather their designer capacity -to synthesize and adapt the designer capabilities- to present a high-quality solution that solve the real needs.

To address any solution, suspected to be needed, the measurement of "high-quality" solutions should be based on how the designer "creates a common sense (or value) about the quality" (Meroni, 2015). For social enterprises working for sustainable development, high-quality should be measured in how solutions deal with community sense and needs over time. To provide such quality design should focus not in material products but in products that can transcend to empower; graphic, communication platform, ecological product, and other services that support the needs through time.

A third form of design contribution can be strategic design to define what actions are needed when social enterprises face issues where they cannot define clear solutions. The development of the design brief and strategy, in this case, will require an intense process of gathering information about the interlinked issues and the parts involved to solve it accurately. So, if the issues cannot be solved with straight answers, the design could contribute to develop a better construction of the problem understanding, a suggestion, routes to follow, and a design process for learning by experimenting with solutions. In this contribution, the visualization of the whole range of opportunities and a defined strategy will benefit social enterprises by providing the confidence and power to start, to have clear steps that lead to experiment, learn and provide good solutions for wellbeing in the long run.

To evaluate such innovative design contributions, Manzini argues that it is necessary to evaluate the design intervention with measurements at a starting point and end point of the design action (Manzini, 2015b). Upon thinking of all the complexity that is addressed when designers contribute with social enterprises, I suggest that the design intervention for social enterprises is evaluated through the improvements of group's dynamics of communication and empowerment. In this form designer will aim to improve such components, that could bring in the long-term solutions for wellbeing.

NEW COLLABORATIONS

Based on the sustainable development criteria and systems analysis of Byoearth, I also found that the complexity dealt by social enterprises could be eased through collaboration. Collaboration with other social actors, enterprises, and government could tackle secondary needs that affect Byoearth's efficiency and capabilities. By being aware of this, social enterprises should be able to establish a good strategy to manage beneficial collaborations based on the social enterprises' objectives.

In addition to strategic analysis of social enterprises, the study suggests design can contribute in the specific implementation cases, designing research projects, products, and services to improve group dynamics, skill-delivery, and empowerment of communities to decentralize the working structure by using the capacities which Byoearth has previously taught in cooperatives or communities.

Design, similarly to entrepreneurship, both shaping disciplines, could benefit always from developing solutions to experiment; but better ways to design require a deeper understanding of needs. As we have explored in the literature review, complexity in social needs and the challenges for sustainability are better addressed in collaboration (Fisher, 2000). From their entrepreneurial approach, social enterprises could provide better solutions if their ecosystem could grow bigger to collaborate with governmental institutions and NGOs with similar objectives.

Similarly, design processes will benefit of collaboration and participative process. Design is sensible to the aims of approaching community's needs by understanding them deeply. It is identified that each of these social actors (Government, NGOs, etc.) and their approaches to sustainable development are important, but nevertheless insufficient. At the same time, it is suspected each has different information that if joined together could define a better design brief to address communities' needs. As entrepreneurs could focus on punctual solutions and its financial models to develop them, designers could focus on developing collaboration for both social enterprises and other actors to develop solutions together.

DESIGNER'S SKILLS AND KNOWLEDGE

Professional designers who plan to work for sustainable development, in the context of sustainability discussed in the theoretical framework, should acquire several new skills: (1) the capacity to re-define the brief of social problems to solve long-term needs, (2) deliver quality in services that allow long-term positive results, (3) recognize his or her synthesizing and evaluation skills, (4) improve visualization skills, and (5) promote positive dynamics in the group, working and empowering others to use the whole capacity to solve problems (Cross, 2007) (Faud-Luke, 2009).

When the design profession recognizes these as important and work to improve them, there will be more sustainable results of their work (Manzini, 2015). Design has the possibility to enable dynamics in the social organization today that could enable a route to a better future. Therefore, society should require changes in academics and professional opportunities, to enable social enterprises to be seen as a platform for design to reach social impact, and where collaboration and participation is a tool to achieve better proposals.

10 TIPS FOR DESIGNERS COLLABORATING WITH SOCIAL ENTERPRISES

1. Bring your own skills to play
2. Understand the systemic problems of the people and the enterprise
3. Ask people and involve them in solutions
4. Propose feasible project, but always think big.
5. Don't forget the social enterprise aim, but adjust it for sustainability.
6. Design phases for implementation, find and suggest partners to satisfy parallel social needs.
7. If you need to design a product, design tools, not accessories.
8. Give re-birth to hidden cultural values through your design.
9. Perfectionate skills and service before scaling.
10. Be open to learn, and enjoy the collaboration.

7.2 LIMITATIONS

The study was successful to define how social enterprises contribute to sustainable development, as I had a good case that has found a way to improve its environment and people's means through a positive product. By choosing a fitting example I was able to show how important these new organizations can be to development within the Guatemalan context. Nevertheless, such study can only draw conclusions of one case, which perhaps shows very different results in other social enterprises. This is because these types of organizations have very particular methods, resources, learning process, and means to approach a community, which vary their results.

I recognize that if I had known more about social enterprises it would have been easier to propose a greater collaboration with them. Nevertheless, I believe this evidences the need of this study to highlight for other designers the characteristics of social enterprises, their contribution to sustainable development, as well as to show possibilities and novel cases of collaboration to inspire other social enterprises and designers to collaborate.

In this specific study, I had various constraints that defined to some measure the research processes, which I find important to state. I had limited time in Guatemala to conduct the research, and had to conduct a short ethnographic research. Due to this, I decided to place a stronger emphasis on the Sumpango cooperative and in the management perspective, which, at the same time, guided the design proposal to be more strategic than practical. This time issue also limited the interaction and trust with the social enterprise and the capacity to implement additional design intentions.

Nevertheless, I obtained enough information about the greatest short and long-term challenges of the social enterprise. The information was gathered successfully by framing the research to evaluate the ethnographic research, the context, and the enterprise's material. And by doing the analysis from an outsider perspective, it was easier to connect the analysis and challenges without greater emotional concerns.

The research limitations defined the process of design, eliminating any possibility of participatory design or workshops, which is mentioned to be important in the theoretical background. These processes of design are therefore included in the design strategy, for future studies, analysis, and prototypes for the social enterprise evolution, primarily with a designer at side.

7.3 REFLECTIONS & RECOMMENDATIONS FOR FUTURE RESEARCH

This study has been a large process of critical analysis to deconstruct one model that brought hope to my mind to solve Guatemala's most pressing challenges. In this process, I started this study ideally thinking of social enterprises as the sustainable model. But, when going to the field, I found social enterprises have actually a lot of problems that could be critical risks to long-term wellbeing of the communities they support.

Then, when I revised the sustainable development literature and compose my own thoughts, I felt somehow that neither social enterprises nor any other institution working for social needs are close to cover individual and social needs of vulnerable communities. And afterwards, when I used design thinking to find a solution to that, I realized that it is in collaboration where there is some chance of achieving a better satisfaction of the most pressing needs.

For instance, this also applies to designers. There was a time when I came to think the designer is not necessary, as social enterprises show many similarities with designers and in some cases, find good solutions without a designer's help. But I soon realized it is not only designers who are, indeed, needed, but actually a greater diversity of actors to benefit the sustainability of the projects. In the end, I also realized that designers working in social enterprises could find some degree of flexibility to experiment with new proposals that lead them to change what is needed. Therefore, I think designers should bring their means and knowledge to work for sustainability processes in the world, working for local values and meanings, instead of industrial purposes.

Future research could investigate and evaluate the application of the design proposals established for Byoearth. This could include contributions for the design field to include measurements and design results of the proposed strategy, defining to what extent it is worth to collaborate and implement projects together.

In the context of Guatemalan governance and social innovation, it would be important to compare the social enterprise with the NGOs and government initiatives to specific themes, to propose national or regional plan that integrate all these social action initiatives. Collaboration between stakeholders in Guatemala could deal with big issues and use design to create spaces in which different disciplines and different cultures, despite its inherent social inequalities, could collaborate. But the need is big and should be approached in collaboration. Therefore, other future projects will include new pilot projects that show example on how to use design thinking and ecosystems enforcement in addressing social issues.

At the same time, other field of research could deeply take the theme of empowerment of Guatemala, and set new knowledge for designers to understand better the matter and propose better solutions for people engagement in Guatemala.

This study can also be extended by social entrepreneurship incubators, government venture funds, and entrepreneurial schools, establishing if the development of funds and investments could use sustainability criteria and incentives for its social enterprises, and to increase the support for rural entrepreneurs.

VALUE OF DESIGN FOR A SOCIAL ENTERPRISE

Byoearth welcomed the study and design proposal positively. Here I wish to present a summary of their comments.

- It is an important contribution for Byoearth.

- It gives a summary of Byoearth for partners to collaborate with.

- The strategic evaluation of Byoearth is useful because it helps the management team foresee many social aspects.

- It is also very important to get short interventions, because that is how much of the work is done.

- The implementation plan is important also, but designers should know the time is always very variable and the implementation will come as means and opportunities arise.

7.4 FUTURE PROSPECTS

This research project was limited to a theoretical analysis and ethnographic research and no practical application was conducted. Nevertheless, the future prospects for design that could arise from it would include all the design projects that should be developed to improve Byoearth's services.

In my strategic design, I propose these design interventions, and I also suggest that they could be supported by measurements and evaluations. Byoearth has received such suggestions with great enthusiasm. They see a great value in this study, being useful for them to present their business to other partners, but also finding the design interventions interesting. They have commented that to implement may take time, but it is definitely worth the effort. In addition, they see a lot of value and were eager to implement the short term proposals of design, which could be the product of some funding that they will soon get to support cooperative. As a designer, wishing to change my environment into a more socially and ecologically sustainable place, I will be eager to collaborate with Byoearth in such design interventions.

Other than collaborating with Byoearth, I would use this compilation and study of Byoearth and other Social enterprises in Guatemala to search for new funding projects that could support my own aims, ideas, and projects to develop the skills and power of people in my country.

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